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A study of sustained effects of early reading intervention on African-American students

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A STUDY OF SUSTAINED EFFECTS OF EARLY READING INTERVENTION ON AFRICAN-AMERICAN STUDENTS

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TABLE OF CONTENTS

CHAPTER

APPENDIX

LIST OF CHARTS AND DIAGRAMS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Background And Rationale

In 1983, after a lengthy study on the status of American Schools, the National Commission on Excellence in Education issued a report which concluded that the quality of our educational system has put our nation at risk.[1] The lack of student success in school is generally attributed to poor skills, most often found in the area of reading. This pattern has been linked to high rates of absenteeism and high percentages of school drop outs. One educational indicator cited as contributing to making us "a nation at risk" included an increased number of functionally illiterate teenagers and adults.

Reasons cited by educators for the failure of students to develop reading skills have ranged from language experience deficiencies to lack of parental support, with innumerable variables in between. To address the needs of these students, reading intervention programs have been explored, developed, implemented, and evaluated in an attempt to ensure literacy and success.

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[1] National Commission on Excellence in Education, A Nation At Risk: The Imperative for Educational Reform, United States Department of Education, Washington, D.C., 1983, 5.

Unequaled financial resources have been invested by federal, state, and local educational entities to provide programming for students at-risk for school failure due to underdeveloped or poor performance in reading. Publishing companies have also joined the fray by developing materials designed to assist these "remedial" readers. In spite of the importance attributed to the development of reading skills, many students, particularly from minority populations, have difficulty acquiring these skills or achieving academic success in this fundamental academic area.

Statement Of The Problem

The purpose of this research project is to conduct a descriptive longitudinal sustained effects study of African American students, from an urban/suburban school district, who participated in an early intervention reading program designed for students identified as "at-risk for academic failure." Comparative and correlational statistical methods and qualitative triangulation will be utilized to determine whether early intervention in reading has:

(a) impacted students' achievement in reading

(b) affected the academic success of students in the sample population

In addition, the qualitative process of triangulation, using three survey procedures will be employed to determine whether early intervention in reading has:

(c) influenced students' attitudes about reading.

Defining The Terms

The nature and scope of the available data on reading achievement and student success for the sample population provided a solid basis for a descriptive longitudinal study of this nature. For the purposes of this project a longitudinal study consists of the collection or review of data over an extended period of time, usually more than three years. This study examines the results of reading intervention strategies over a ten year period. Descriptive longitudinal studies can enable a researcher to show the development of subjects over a period of time and the relationship of what has occurred earlier with the happenings at later times. [2] These relationships, among the variables within the group, lend themselves to comparative and correlational statistical procedures.
The examination of more recent data may be verified and supported or negated through direct contact with the subjects in the sample population. By utilizing surveys and questionnaires in a qualitative manner, the project acquires another dimension relative to human behavior and provides a framework for student attitudes about reading.

In reviewing the definitions of terms related to this project it is important to utilize both broad and specific terminology in order to link both the historic and current perspectives of literacy and reading. These terms include functional illiteracy, reading, standardized testing, achievement, academic success, attitudes, reading instruction, intervention, and sustaining effects.

Functional illiteracy can be defined as an individual's inability to read or write at a level which enables him/her to interpret and comprehend basic symbols. "Reading,"

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[2] William Asher, Educational Research and Evaluation Methods, Boston, Little, Brown, and Company, 1976), 146.

as defined in The Report of the Commission on Reading, Becoming a Nation of Readers, "is a basic life skill. It is the process of constructing meaning from written texts. It is a complex skill requiring coordination of a number of interrelated sources of information."[3] As a cornerstone for student success, reading enables the individual to convert written language, providing access to knowledge, information, and pleasure that may be unobtainable through any other vehicle.

> Reading is also important for the society as well as the individual. Economics research has established that schooling is an investment that forms human capital - that is, knowledge, skill, and problem-solving ability that have enduring value. While the country received a good return on investment in education at all levels from nursery school and kindergarten through college, the research reveals that the returns are highest from the early years of schooling when children are first learning to read.[4]

Thus, reading and literacy are interrelated entities that impact on the individual's ability to function in society and reading achievement is a measure of that ability.

For the purposes of this project, reading achievement is defined relative to standardized achievement testing. Measured using a bell curve, standardized tests, which are administered in a controlled environment, enable the researcher to view the individual in relationship to other students on a specific body of material designed to demonstrate levels of knowledge or skill acquisition.

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[3] Richard C. Anderson et al., Becoming a Nation of Readers: The Report of the Commission on Reading, Washington, D.C., The National Institute of Education, United States Department of Education, 1984, 1.

[4] Ibid, 1.

California Achievement Test (CAT) scores will serve as the primary measure of academic achievement for the sample population. CAT scores may be reported in several forms:

(a) Raw scores are the actual number of correct responses to test terms. These responses are generally converted to scale scores by test publishers.
(b) Scale scores are units of a single, equal interval scale that is applied across all levels of CAT, regardless of grade or time of year of testing. These scores are expressed as numbers that may range from zero through 999.
(c) Percentile ranks, which range one through ninety-nine, are rank ordered scores with an equal number of subjects per score. A percentile rank indicates the percentage of scale scores in a norm group that fall below a given student's scale score.
(d) The stanine score draws its name from the fact that it is a Standard score related to a scale of nine units. The scale of equal units from one through nine has a mean of five and a standard deviation of two.

Students performing in the lower ranges on standardized tests are often viewed as not having learned or acquired specific knowledge or skills. These students may be classified as being at-risk for academic failure and are identified as having exhibited deficiencies in knowledge, experiences, or learning characteristics that are below "average" for students of that age, grade, or developmental stage. When levels of standardized achievement tests are administered annually, the expected growth rate is at least one year. This growth is then exhibited by the same score on a higher level test. If these students continue with the same score, they may never reach average levels. These "deficiencies" may then contribute to a perceived lack of academic success.

Academic success is a subjective assessment of the student's ability to perform classroom tasks and activities based on the teacher's instruction and expectations.

Generally, a composite of the student's performance on in-class activities, homework assignments, quizes/exams, work, and behavior habits comprise an alpha or numeric rating of student success or a "grade." This grade then reflects the teacher's belief of whether or not the student is learning and to what degree learning has occurred.

Another measure of academic success is student placement in high school courses. Students placed in regular or high ability classes are expected to succeed and often follow the college preparatory track. Students placed in lower ability classes are perceived as not academically successful and may be discouraged from pursuing higher levels of education.

Academic success may also be influenced by the teacher's perception of the student's attitude about the content area or his/her ability to do the assigned work independent of whether the student is learning. Attitudes, through combining the common elements of several definitions, may be conceptualized as learned predispositions to respond positively or negatively to certain objects, situations, institutions, concepts, or persons.[5] Attitudes can not, therefore, be directly observed but are inferred from behavior. Attitudes about reading can be defined as the student's own perceptions and feelings about both the process and the active interchange of acquiring information, knowledge, or enjoyment. "The way students feel about reading is closely involved with their reading achievement."[6]

The literature on literacy also suggests that reading achievement improves with practice. This practice is provided as an element of the instructional program. It seems

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[5] Lewis R. Aiken,"Attitude Measurement and Research," in New Directions for Testing and Measurement, 1980, 1-3.

[6] Regina Tullock-Rhody and J. Estell Alexander, "A Scale for Assessing Attitudes Toward Reading in Secondary Schools," Journal of Reading, (April 1980): 609-610.

reasonable to assume that students with a positive attitude about reading would read more, thereby increasing their literacy rate.

The regular instructional program consists of teacher and/or student directed activities that are developmentally appropriate for the student's acquisition of specified reading objectives. These objectives are generally determined by a curriculum, which includes a scope and sequence of acquired skills, which will ultimately lead to reading proficiency.

In the United States, students typically begin a formal instructional program with a specific curriculum in kindergarten and first grade. The kindergarten program in reading traditionally focuses on "reading readiness" activities. While these activities include some references to the alphabet, concepts about print, and writing, the more structured reading skills usually begin in first grade.

Intervention is the process by which identified and selected students, who may not be learning, receive additional support designed to remediate, strengthen, enhance, accelerate, or otherwise positively influence the acquisition of basic reading skills beyond the regular instructional program. Early intervention is therefore related to strategies that are implemented during the first or second grade, based on an assessment of student achievement in kindergarten or beginning first grade.

The intervention activity in which the sample population participated is called the Intensive Reading Program. It was designed by the school district as a support program for students in grades one through five who scored in stanines one through three on the CAT administered in the spring of 1983.

Intervention in this project is independent of the nature of the actual instruction. Issues such as in-class teaching versus pull-out, small group or individual tutorial, time on task, or whole language versus basil or phonemic instruction are not considered. The key issue is that selected students are receiving additional reading instruction which should enable them to acquire skills that should be sustained over time.

The term "sustaining effects" has generally been associated with a study mandated by Congress in 1974. The Commissioner of Education was directed to "expand his efforts to describe the actual and potential recipients of Title I services and evaluate the effects of such participation over time." [7] For the purposes of this project sustained effects describes the maintenance or improvement of student skill acquisition or outcomes in reading based on an intervention model of instruction.

The recipients of the Title I program have been described as being "educationally deprived students residing in areas with high concentrations of children from low-income families." [8] These families were typically found in urban, metropolitan, and rural areas, and in many instances minorities. However, as national demographics shifted, more of the populations moved to suburban areas that surrounded the metropolitan cities. The sample population of this project is located in an area which is bordered by a major metropolitan city that has a very high concentration of low-income families. The students' socioeconomic status, however, was not a criteria in determining eligibility for participation in the intervention program or study or for consideration in the sample population.

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[7] Launor F. Carter, A Study of Compensatory Education and the Sustaining Effects Study, Washington, D.C., Office of Program Evaluation, United States Department of Education, January 1983, 1.

[8] Ibid.

The population of the school district in this suburb consists of approximately 48 percent of the student body who are students of African American descent. Although the intervention program was not designed to target a specific ethnic group, approximately 95 percent of the program participants were African-American. The sample population consists of 100 percent of the students of African American origin.

The intervention program may also be supported by additional services offered through the schools. Summer school participation, learning disabilities, speech/language support, and social work are a few of the variables that may impact student success.

Finally, data relative to controlling variables that may influence reading achievement will include gender, birth date, family structure, and socioeconomic status. The family structure data is comprised of the marital status of the parents, the number of siblings, and the birth order of the subject at the time he/she was enrolled in school, which is one year prior to program participation. The socioeconomic status of the subjects when entering the program will be determined by enrollment in the school's free and reduced lunch program. This program operates under federal guidelines based on family size and income.

Limitations

The limitations of the project are inherent in using a descriptive approach rather than a true experimental or quasi-experimental design. There is no control group to compare outcomes based on intervention as a treatment strategy. Yet, by using many

sources of data, which have accumulated over time, a sharper and detailed picture of the progress of a cohort group receiving this initial treatment can be presented.

Another limitation for consideration is the size of the sample. In the process of using cohort groups over a nine year period, the natural attrition in the number of subjects remaining in the sample population increases. In the initial identification stage of the sample seventy-eight students met the criteria. This represents a moderate sample size for a study of this nature. However, once data collection was initiated, the number of subjects contained in the sample population was reduced to thirty-nine. This was reduction was due to migration of the participants out of the district, students who had missing data, or students who moved out of the district but returned at some point during the years of study. The thirty-nine students included in the final data analysis represents 50 percent of the original number of minority student participants.

Intervening variables are another limitation associated with this project. Over a nine year period, factors such as out-of-school activities, the nature of parental support, natural developmental maturation, and changes in the living environment may have influenced the subject's reading abilities and or attitude about reading.

Finally, human behavior, which can be unpredictable, serves as an additional limitation. The variations in teacher expectations on student achievement, instructional methodologies and techniques, and interpersonal interactions are elements of the classroom which are not controlled in the project. The impact of these factors on the subject's reading achievement, academic success and attitudes can only be described in theoretical terms, but are not measurable within the context of this study.

Significance

Reading, as a fundamental academic area, is an individual's ability to understand language by interpreting written symbols and is directly related to literacy. Many educators consider reading to be of primary importance in the learning process of students. They further believe that the ability or inability to read may impact student self esteem and school success. Yet, many students, particularly from minority populations, continue to have difficulties developing the necessary reading skills or achieving academic success.

In 1983, a reported 23 million American adults and approximately 13 percent of all 17 year olds in the United States were considered functionally illiterate by the simplest tests of everyday reading, writing, and comprehension.[9] It was predicted that functional illiteracy among young minority youth may run as high as 40 percent.

Since 1965, federal, state, and local agencies have developed support programs to address the literacy issue. Innumerable reports and projects have been generated to determine if these support programs are effective. The evidence continues to indicate that effectiveness seems to be short term, is based on program rather than process evaluation, and can be correlated to the age of the student when intervention takes place.

The significance of this project for the local school district will be to provide additional research data and a status report relative to students who received the intervention and remained in the school district through their elementary educational

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[9] National Commission on Excellence in Education, A Nation at Risk: The Imperative for Educational Reform.

training. The results of this study will influence the district's decisions regarding the maintenance, modification, or elimination of reading intervention programs.

In the state of Illinois, 1985 educational reform legislation provided for additional resources designated for "Reading Improvement" programs. These programs were in addition to federal monies allocated for Chapter 1 activities which focus on remedial education. The guidelines for participation in the state program require annual data analysis for student participants. Local school districts who have participated in this program should be encouraged to replicate this project for students within their schools. The results of this study can serve as a basis of comparison and, if positive, provide an influential factor in supporting the need to continue resources for reading intervention programs. Planning for the collection and analysis of longitudinal data should be established with program implementation.

On a national scale, re-authorization for Chapter 1 programs occur every four years. The "Effectiveness of Chapter I Services" is a report that is generated by the Office of Educational Research and Improvement within the United States Department of Education. Several of the findings presented in the interim report of 1986 indicate that:

(a) "Long-term effects of Chapter I programs on graduation rates, future education, or adult literacy are unknown.
(b) Attempts to identify particular project characteristics that improve student achievement test scores have been ineffective.
(c) Chapter I students with very low achievement scores maintain their relative positions but do not advance.
(d) Students in early-elementary Chapter I programs gain more than those in later grade programs.
(e) Evidence of program effects on student attitudes towards school are inconclusive."[10]

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[10] Mary M. Kennedy et al., The Effectiveness of Chapter I Services: Second Generation Report from the National Assessment of Chapter I, Washington, D.C., Office of Educational Research and Improvement, July 1986, 1.

Chapter I programs in reading are intervention programs that are provided in addition to the regular classroom instruction. While this project did not focus on Chapter I as the specific intervention under study, the process of supporting the instructional program of the student beyond the classroom remains the same. Thus, the significance of the project on a national level would be the results which respond to several of the conclusions derived from the 1986 interim report.

The overall impact of this project may then redirect the attention of researchers and educators to consider process (intervention) versus specific programs (i.e., Chapter I, Reading Recovery, etc.), and invest more energies in exploring whether the process is ultimately effective in impacting student achievement, attitude, and academic success. Process studies would focus more attention on the "how" student deficiencies are being addressed. Program studies focus on the "what" dimension parameters and program evaluation often cloud the results. It will encourage and support the premise that longitudinal sustained effects studies are an acceptable methodology for utilization in educational programming.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

A review of the literature in a project of this nature consists of an examination of the many complex facets of the acquisition of reading skills. In Chapter 2, information will be presented regarding both historical and current theories on reading and literacy, reading intervention projects, compensatory education related to reading, longitudinal and sustained effects studies on general and minority student achievement, and student attitudes and their impact on achievement relative to reading.

Reading And Literacy

Reading may be viewed as the translation of a complex code of alphabetic symbols into meaning. The merit of an alphabet system is that symbols are easy to reproduce and interpret. The cost of this ease, however, is that we have to learn an abstract and conceptually complex code.[11]

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[11] Marilyn Jager Adams, Beginning to Read: Learning and Thinking About Print, (Champaign-Urbana, Illinois: Center for the Study of Reading, The Reading and Research Center, 1990), 3.

The content area of reading has been identified as the specific area of focus for the study project. The teaching and learning of this code has been the subject of debate for decades. In colonial times in the United States, reading instruction followed a two-step straight forward pattern according to Balmuth (1982).[12] Teach children the code and then have them read.

What was taught about the code was sequenced into children learning about the alphabet, the individual letters and sounds representing words (phonics), and words formulated into sentences and phrases which collectively had meaning.[13] Students were primarily asked to read the Bible and, after the Revolutionary War, nationalistic and patriotic essays. This reading matter supported the pre-described reading process and reflected an uncomplicated approach through the middle of the nineteenth century.[14]

Balmuth suggests that by mid-nineteenth century social values led to a concern for how reading was taught. It appears that during this time phonics and comprehension were viewed as mutually exclusive and Horace Mann led the way in the development of a whole-word challenge, which created the forum for all-purpose reading books designed to match children's developmental stages and achievement levels in linguistics and content.[15]

Until education became the key to dealing with the needs and demands of a multicultural society in the mid 1920s the first reading curriculum had not been designed

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[12] M. Balmuth., The Roots of Phonics, (New York: Teachers College Press, 1982) 31.

[13] Marilyn Jager Adams, Beginning to Read: Learning and Thinking About Print, (Champaign-Urbana, Illinois: Center for the Study of Reading, The Reading and Research Center, 1990), 6.

[14] Ibid, 4.

[15] M. Baulmuth,, The Roots of Phonics, (New York: Teachers College Press, 1982), 190.

to foster a productive, creative, and responsible citizenry that developed based on knowledgeable and intellectually independent individuals.[16]

Chall (1967) states that:

> "From the 1930s through the 1940s, major beginning reading programs focused on comprehension. Words were introduced through meanings first, to be recognized wholistically by sight. When straight recognition failed, the children were encouraged to rely on context and pictures. Meanwhile, phonics was relegated to the position of a tool to be introduced gradually, invoked sparingly, and only exercised in coordination with the meaning-bearing dimensions of text.[17]

During the 1950s, educators began to debate the merits of a phonemically taught system versus a whole word system. In the center of this controversy was Rudolph Flesch, author of Why Johnny Can't Read. Scholars and researchers began to investigate and compare reading programs and found that those which included early, systematic phonics instruction generally produced better results than those that did not.[18]

The positive results of examining these issues, according to Marilyn Jager Adams, is that today's beginning reading programs are more eclectic and combine systematic instruction in spelling with sound correspondences, as well as stories and exercises intended to develop and reinforce comprehension skills. [19]

However, Adams suggests that this debate also brought forth two important negative side affects. First was Flesch's allusion to communist interaction and his insinuations about the intellectual predispositions and capacities of females and minorities. Second, Flesch "blurred the issues and suppressed rational debate" of the larger substance of the complexities of reading comprehension. [20]

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[16] Jean S. Chall , Learning To Read: The Great Debate, (New York: McGraw Hill, 1967), 16.
[17] Ibid, 16-20.
[18] Marilyn Jager Adams, Beginning To Read: Learning and Thinking About Print, (Champaign-Urbana, Illinois: Center for the Study of Reading, The Reading and Research Center, 1990), 6.
[19] Ibid , 6.
[20] Ibid , 7.

Adams also believes that the continuation of this debate diverts a great deal of time from improving the teaching and learning of reading. "The social and economic values of reading and writing are multiplying in both number and importance. Levels of literacy that we have, until very recently, held satisfactory will be marginal by the year 2000."[21]

The definition of reading has expanded since colonial times. As defined by the authors of Becoming a Nation of Readers (Anderson, Heibert, Scott, Wilkinson and Others, 1985), reading is:

> "a process in which information from the text and the knowledge possessed by the reader act together to produce meaning. Good readers skillfully integrate information in the text with what they already know.
>
> The meaning construed from the same text can vary greatly among people because of differences in the knowledge they possess.
>
> Even subtle differences between a child's interpretation and the 'right' adult interpretation can give rise to the impressions that the child doesn't understand the material."[22]

Within the Report of the Commission on Reading, five generalizations were made based on a review of decades of reading research : 1) reading is a constructive process whereby no text is completely self-explanatory; 2) reading must be fluent and readers must be able to decode words quickly; 3) reading must be strategic, which enables skilled readers to be flexible in reading for various purposes; 4) reading requires motivation, which is one of the keys to learning; and 5) reading is a continuously developing skill that improves with practice. [23]

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[21] Richard C. Anderson And Others, Becoming A Nation Of Readers: The Report of the Commission on Reading, (Washington, D.C.: The National Institute of Education, United States Department of Education, 1984) , 3.

[22] Ibid, 9 -10.

[23] Ibid, 17-18.

Becoming a Nation of Readers emphasizes the importance of reading in today's society. Reading is viewed as a basic life skill which provides opportunities for knowledge attainment, personal fulfillment, and job success. Based on test scores used to measure reading achievement, it appears that recent trends are mixed. Scores on tests that gauge advanced reading skills showed small but steady declines from the early 1960s until the late 1970s where they leveled off and started to climb.

With respect to basic reading skills, as gauged by the ability to comprehend everyday reading material, results from the National Assessment of Educational Progress (NAEP) confirm that slight gains continued to be made during the 1970s with the largest gains being made by Black children living in large cities.[24]

International comparisons have also been made regarding the acquisition of reading skills. While it is difficult to make these comparisons, those made between the United States, Taiwan, and Japan showed a wider spread of achievement among children in this country. Although many American children did well, a disproportionate number were among the poorest readers in the three countries.[25]

What now appears to be occurring is a serious shift in both the philosophical and theoretical approach to reading. In 1985, a NAEP report concluded that: "while we have made improvements in teaching 'basic skills', we have not been successful in teaching 'higher level comprehension skills and critical thinking skills."[26]

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[24] Ibid, 2.
[25] Ibid, 3.
[26] National Assessment of Educational Progress, The Reading Report Card, Progress Towards Excellence in Our Schools: Trends in Reading Over Four National Assessments, 1971-1984, Report No. 15-R-01, Princeton, New Jersey: Educational Testing Service, 1985), 47.

Authors from the Reading Report Card publication summarize current thinking, as well as provide guidance:

> "There has been a conceptual shift in the way many researchers and teachers think about reading, which gives students a much more active role in the learning and reading comprehension process... Reading in schools is sometimes a relatively superficial activity, a prelude to a recitation of what others have said... In developing higher-level reading skills and strategies, students will benefit from experience with a wide range of challenging materials... They can learn to develop their own interpretations of what they read, to question, rethink and elaborate upon ideas and information drawn from their reading experiences...and in that process, students will also be acquiring the higher-level reading comprehension skills that so many are presently lacking."[27]

This new shift from the basics is now being termed literacy. For beginning readers the term "emergent literacy" connotes a more naturalistic approach to the teaching and learning of reading skills.

The research of Marie Clay of New Zealand (1979,1982,1985) has helped educators to expand their knowledge about how young children learn to read. In addition to "breaking the code" young readers must learn to "orchestrate" their knowledge of language, the world, and print and how it works. Poor readers do not seem to achieve this orchestration. [28]

In the article, "Research Directions: Success For All: Ending Reading Failure From the Beginning," Slavin, Madden, Karweit and Others acknowledge that for some students the opportunity to become literate depends on the efficacy of their school experiences. These experiences need to be carefully designed and must be based on the premise that all children can attain high levels of literacy, beginning in the primary grades.[29]

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[27] Ibid, 49.

[28] Marie Clay, The Early Detection of Reading Difficulties, third edition , (Portsmouth ,New Hampshire: Heinemann, 1979), 3.

[29] Robert Slavin, et. al., "Research Directions: Success For All: Ending Reading Failure From the

These authors further cite the findings of NAEP which stated that:

> "...38 percent of all nine-year-olds cannot read at the 'basic' level considered a minimum requirement for success in school. Among African American nine-year-olds, 61 percent fall below the 'basic' level (Mullis & Jenkins, 1990). Students who do not read in the early grades often end up in remedial programs, special education, or retained in a grade."[30]

Furthermore, research indicates that disadvantaged third graders who are a year or more below grade level have little chance of graduating from high school (Lloyd, 1978).[31]

The issue of literacy also compels educators to refocus on the components that contribute to the knowledge base of children. The Report on the Commission on Reading acknowledges that the impact of the home environment, which provides the first critical steps to learning to read, must also be addressed. However, educators are faced with the task of taking students from where they are when they enter the school to providing them with experiences that will make them capable, literate readers.

The systematic process for formal literacy acquisition begins during the kindergarten year. Although there is a debate regarding the nature of the formal instruction, there is general agreement that language experiences, the foundation for reading, is developmentally appropriate for kindergarten students. It has also been agreed that because children enter a typical kindergarten class with differing levels of knowledge about printed language, instruction needs to be adapted to account for these

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Beginning," Language Arts, vol. 68, September 1991: 404.

[30] National Assessment of Educational Progress, The Reading Report Card. Progress Towards Excellence in Our Schools: Trends in Reading Over Four National Assessments, 1971-1984, Report No. 15-R-01, (Princeton, New Jersey: Educational Testing Service), 1985.

[31] D. N. Lloyd, "Prediction of School Failure From Third Grade Data," Educational and Psychological Measures, No. 38, 1978: 1,193-1,200.

differences.[32] Literacy must then be extended and, as proficiency develops, reading should be thought of as essential for integration into other content fields of learning.

The literature on reading and literacy reviewed for this project clearly indicates that society in general and education in particular must pay attention to the numbers of students in our schools who are not meeting with success in this fundamental area. An individual's inability to read has a profound impact on his/her status in today's society. The world has rapidly moved into a technological-information age in which full preparation in education, science, industry, and other professions are requiring increasingly higher levels of reading and critical thinking abilities. The skills required to meet the challenge must not be ignored or set aside in the hope that future generations will be literate enough to meet the demands of the present and the future.

Based on what we know, it would be erroneous to assume that there is a simple or single step to solve this crisis. Within our own country, our leaders have acknowledged that we are "a nation at Risk." "What was unimaginable a generation ago has begun to occur - others are matching and surpassing our educational attainments." Reading and illiteracy are at the heart of our concerns. We must be diligent in our efforts to improve the reading instruction for our students, and to do so we must be ever vigilant in monitoring their progress.

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[32] Richard C. Anderson And Others, Becoming A Nation Of Readers: The Report of the Commission on Reading, (Washington, D.C.: The National Institute of Education, United States Department of Education, 1984), 28-29.

Reading Intervention

Educators recognize that all students are not learning to read at expected rates. Early reading difficulties can prevent students from achieving initial success in school and set a pattern of academic failure for many years to come. When a student is unable to read and the problem is not addressed early, the failure that they repeatedly experience usually requires continuous and expensive extra help for many years. Often, they never learn to read well.[33] The reasons attributed to this dilemma have been debated for decades. One attempt to address this concern has been the implementation of various reading intervention programs.

While they vary in structure, these programs are designed to identify students who are not meeting with success and provide additional support to remediate, strengthen, enhance, or accelerate the student's acquisition of reading skills and strategies. The structures range from ability grouping, where an entire group of students are clustered together and provided with some "specialized" instruction, to individual tutorial programs which involve a one-on-one relationship. The intervention activities are usually provided as a supplement to the regular educational program and often the standard curriculum.

Richard Allington and others (1985) conducted a study to provide preliminary information on the nature of remedial reading instruction. The study specifically examined the focus of remedial instruction and its relationship to the regular classroom reading program. Information was gathered through observation of identified remedial

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[33] Robert Slavin, et. al., "Research Directions:Success For All: Ending Reading Failure From the Beginning," Language Arts, vol. 68, September 1991: 404.

students in both their regular classrooms and their remedial sessions. Results showed that there was little evidence of the use of clear cut goals or of monitoring of student advancement towards goals. Little congruence was found between instruction in regular classrooms and instruction in remedial classes.[34]

The recent trend in intervention programs is to provide this support in the earliest possible grades where reading becomes a formalized process. It is believed that if intervention takes place as soon as reading difficulties have been identified, the student is more likely to have those difficulties corrected.

In the late 1970s, S. Jay Samuels advanced the method of repeated reading to develop fluency. This approach was utilized in an intervention program developed by Phyllis Trachtenburg and Ann Ferruggia. The "shared big books" that were developed were designed to improve the reading skills and self concept of first graders designated as "transitional." These students possess skills too advanced to warrant kindergarten retention, but not strong enough for success in first grade. Their results indicate significant growth in the transfer of learning and positive attitudes about school and reading.[35]

Walter Swanson (1979), of the Liberty Public School District in Liberty, Missouri, reported on an intervention program developed to thwart the regression of reading achievement that occurred for some students during the third grade. The program provided for a year of intensive instruction. The results, reported using the Stanford Achievement Test and the Woodcock Reading Mastery test, indicated student

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[34] Richard Allington., "What is Remedial Reading? A Descriptive Study," Educational Research Service, 1985.

[35] Phyllis Trachtenburg and Ann Ferruggia, "Big Books From Little Voices: Reaching High Risk Beginning Readers," The Reading Teacher, January 1989: 284-289.

gains ranging from 1 year to 3.4 years on specific components of the individual measurement instrument.[36]

The most impressive and up to date research on reading intervention is based on the 1984-85 Columbus City Schools pilot of a program entitled "Reading Recovery." Reading Recovery originated in New Zealand and was developed by child psychologist and educator Marie Clay. It has been a nation-wide program since 1979 and currently boasts major school projects in Arizona, Illinois, South Carolina, Texas, Canada, and Australia. The program is based on the premise that early and high quality support has the greatest potential for providing long lasting impact and for reducing the need for continued remediation. The program is an intensive one-to-one tutorial activity for first grade students identified as the poorest readers. This usually represents the lowest 20 percent in the first grade classroom using teacher judgment and a diagnostic survey.

The primary goal of Reading Recovery is to reduce reading failure through intervention by enabling students to become independent readers. The program accomplishes this by: 1) bringing students "at risk" of reading failure up to the average of their class within a short period of time so they may benefit from ongoing classroom instruction and 2) helping students develop a self-improving system or set of strategies for continued growth in reading so that additional support is not necessary.[37]

Reading Recovery is viewed as an early intervention program as opposed to a program designed to remediate student learning. The idea is to provide intensive and focused activities while the child is in the process of learning the early strategies of

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[36] Walter Swanson, "Third Grade Reading Intervention," Educational Research Service, June 1979, WLS 06-04-79.

[37] Gay Su Pinnell, et. al., "Reading Recovery: Early Intervention for At-Risk First Graders," Educational Research Service, 1988.

reading. The support is provided on a short term basis and the level of intensity of the directed instruction relies heavily on the support of the regular classroom.[38]

The activities build on the strengths of what the student already knows and integrates the reading and writing process. Students are taught to problem solve through such strategies as self-monitoring, cross-checking, predicting, and confirming. These strategies enable students to become independent readers because they learn the "how to" of reading rather than the memorization of any specific list of words. Reading Recovery is not dependent on a specific reading series, is action oriented, and does not have as its goal a set criterion or "gain."[39] Students who participate in the program are expected to make accelerated progress to enable them to catch up with their peers in a regular classroom setting.

The Reading Recovery methodology makes a continuous connection between reading and writing. Each activity is developed on an individualized basis relative to the progress of the student. The staff development component of the program requires an intensive year long training process, which is ongoing as the teacher works with the students in the program. Because the program is instruction intensive, specific limits have been suggested regarding the number of students a teacher can be expected to serve during a school year.

The research results in New Zealand were so successful that Ohio State University initiated the intense training program for teachers. The program was funded by the state's legislature. Other colleges and universities across the country are also

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[38] Ibid, 2.
[39] Ibid, 3.

developing teacher training sites as districts increasingly seek to implement the best possible intervention program.

Ohio State commissioned the first study of the Reading Recovery pilot project. The study indicated that after twelve to fifteen weeks of instruction, 66 percent of the first grade participants showed significant improvement in reading and writing skills. A three year longitudinal study (Lyons, 1989), funded under the same project, indicated that students who were successfully discontinued from the Reading Recovery Program as a group performed within the average range for their grade-level peers at the end of first grade, and continued to perform within the average range for their grade level peers through the end of second and third grades.[40]

Mary Boehnlein (1987), of the Ohio City School system, reported that in her class, after an average of fifteen to twenty weeks, or thirty to forty hours of instruction, 90 percent of the students whose pretest scores were in the lowest 20 percent of their class caught up with the average students and never needed additional support. She also reports that not only did the students make greater gains than other "high-risk" students who received no help, but they also made greater gains that the children who needed no assistance.[41]

Carol Lyons (1988) conducted a pilot study designed to review the effects of Reading Recovery as an early intervention tool for "faltering" early readers and those diagnosed as disabled. The study, a repeated measures design, indicated that the overall between-group multivariate F was significant ($p>.05$), and univariate analysis of

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[40] Carol Lyons, "Reading Recovery: An Early Intervention Program That Can Prevent Mislabeling Children as Learning Disabled," ERS Spectrum, Fall 1989 vol. 7, No. 4: 3-9.

[41] Mary Boehnlein, , "Reading Intervention For High Risk First Grader," Educational Leadership, March 1987, 32-37.

variance were completed for the variables of learning disabled versus non-learning disabled. Of the learning disabled readers, 73.3 percent were discontinued from the program. Of the non-disabled readers, 70 percent were discontinued from the program. These students were returned to regular reading activities. Those students who were not discontinued made notable gains, but their gains were not significant enough to place them in the middle reading group of their regular classes.[42]

Elfrieda Hiebert feels that "Reading Recovery has directed attention to early literacy in a manner that has not been the case for at least the past twenty years."[43] Its focus on the bottom quintile has shifted attention from conventional program comparisons where mean effects are used to determine the effectiveness of the intervention program (Stahl, & Miller, 1989). Research on Reading Recovery indicates that 75 percent to 90 percent of the students who receive this support are able to perform at the average level of their class after about thirty hours of intervention (Pinnell, 1989). Longitudinal studies of Reading Recovery show that students who received this tutoring program and exited at first grade still performed significantly better than matched controls by the third grade (DeFord, et al., 1987).[44]

Reading Recovery, however, is an expensive program. Few researchers and educators have given much thought to how schools in New Zealand, where it is a nationwide program, differ from their American counter parts (Goldenberg, 1992; Guthrie, 1981). Given the intensive requirements for teacher training, and the limited

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[42] Carol A. Lyons, "Patterns of Oral Reading Behavior in Learning Disabled Students in Reading Recovery: Is a Child's Learning Disability Environmentally Produced?", Educational Research Service, 1988.

[43] Elfredia Hiebert, "A Small Group Intervention with Chapter I Students," Getting Reading Right From the Start, University of Bolder Colorado, 1992, 3.

[44] Ibid, 3.

number of students who can be served in this program, other educators have developed intervention models which in part are based on the Reading Recovery premise.

"Success For All", is an example of one such program. Developed by Robert Slavin, Nancy Madden, Nancy Karwei and others, this program is also designed to bring all children to grade level in basic skills by the third grade.[45] Similar to Reading Recovery, the program uses one-to-one tutoring, researched-based reading methods, frequent assessment, enhanced pre-school and kindergarten programs, family support, and other interventions designed to prevent learning problems from developing. The Success For All program focuses on prevention and immediate intensive intervention.

Success For All expands beyond first grade and is inclusive of elementary grades pre-kindergarten through five. An evaluation of the program in an inner-city elementary school found substantially enhanced language skills among pre-school and kindergartners, and reading skills among students in grades one through three, in comparison to matched controls. Special education referrals and retentions were also reported to be substantially reduced.[46]

"Project Prevent" is another such intervention program modeled after Reading Recovery. Developed by Darrell Morris, in Evanston, Illinois, Project Prevent is an intensive tutorial one-to-one program developed for use with first grade students at risk of failing to learn to read.[47] The program combines the descriptive research of Clay on the acquisition of literacy with techniques and strategies developed by Morris relative to

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[45] Robert Slavin,, et. al., "Success For All: First Year Outcomes of a Comprehensive Plan For Reforming Urban Education," American Educational Research Journal, vol. 27, Summer 1990, No 2: 255-278.

[46] Ibid.

[47] Darrell Morris, "Project Prevent: A Model of Early Intervention For High Risk First Grade Readers," Educational Research Service, 1990.

developmental spelling as an early predictor of success in reading. The program was implemented in Skokie, Illinois in 1987 and is showing significant success in improving students' reading achievement.

Elfrieda Heibert, University of Colorado, recognizes the limitations of one-to-one tutorial programs and has created the Right Start Project. Like Reading Recovery, Success For All, and Project Prevent, Right Start is designed to address the issue of prevention through the process of early literacy intervention. Unlike the other programs, students receive instruction in a small group setting with a teacher:pupil ratio maximum of 1:3. Results from this project are similar to those of Reading Recovery where students make substantial gains, which to date have been sustained or increased.[48]

The preponderance of intervention projects emphasizes the desire of the educational community to tackle illiteracy. This dilemma is now viewed as a problem of schooling and the system and not necessarily a deficiency on the part of the student. Although each project presented contains a component that relies on support from the home, the programs are designed to provide students with support regardless of whether or not it is received at home.

Philosophically there has been a movement from remediation to prevention, intervention, and support. Creating independent readers is now the goal rather than teaching the same skill, concepts, and materials in a slower manner for a more extended time, which was the case with earlier intervention programs for "at risk" readers. It is also of interest to note that few projects were developed that did not relate to or were not funded by the Federal government programs relative to compensatory education.

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[48] Elfredia Heibert,, Getting Reading Right From the Start, University of Bolder Colorado, 1992.

Compensatory Education

Compensatory Education (CE) is the frame work which has directed the development of most of the remedial reading programs in this country and is therefore critical to the issues of this project. It is an amalgam of many different services delivered in different ways. Students receiving services under this model are generally exposed to more hours of instruction in reading and math, smaller instructional groupings, delivery by specialized staff, and more varied instruction.[49]

In 1965, the Federal Government responded to the civil rights movement and a public demand for financial support to schools that would address issues related to students deemed economically disadvantaged through compensatory education legislation. The passage of the Elementary and Secondary Education Act marked the beginning of the Title I program (now entitled Chapter I). Within the context of this literature review, Title I and Chapter I refer to the same program and are used interchangeably. Since its inception, the program has grown so that virtually every school district in the nation receives some federal funding under the provisions of this legislation. In recent years, thousands of students have participated in intervention programs funded through Chapter I. The programs that were developed were intended to alleviate school failure in general and reading failure in particular (Allington, 1986). Through 1986, more than 75 percent of participating students were receiving supportive instructional services in reading.[50]

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[49] Launor F. Carter, "A Study of Compensatory and Elementary Education: The Sustaining Effects Study," United States Department of Education, Department of Program Evaluation, 1983.

[50] Mary L. Kennedy, "The Effectiveness of Chapter I Services: A Second Interim Report From the National Assessment of Chapter I," (Washington D.C: Office of Educational Research Improvement,

The Chapter I programs developed to address remedial reading were generally based on assumptions about environmental factors and their effects on a student's ability to learn to read; thus, economic disadvantage was the primary criterion in establishing eligibility for services.[51] (Allington, Franzen 1989)

The programs were mandated as supplementary activities that were to be conducted in addition to the regular school program. A series of parameters, guidelines, and procedures were developed to be implemented at the local level and monitored and evaluated by the state's educational agencies.

It is important to cite the history of the Chapter I program because it is directly linked with the inclusion of reading intervention activities which usually involve additional staff, resources, and equipment; staff development; and targeted parental involvement. Many districts use Chapter I funds to develop and implement their intervention programs.

Over the years, individual state or district studies have presented dramatic evidence to support Chapter I reading intervention programs, particularly for the early grades.

In 1971, Edward Steirnagle completed a five year summary of the effectiveness of Title I remedial reading programs in El Paso, Texas. It was discovered that after the first year and a half of the program (implemented in 1966) only an average of six months gain had been made by the 801 program participants. After the initial year of implementation, Steirnagle analyzed the program based on the following factors:

1986), 12.

[51] Richard Allington and Anne McGill-Franzen, "School Response to Reading Failure: Instruction for Chapter I and Special Education n Grades Two, Four, and Eight," The Elementary School Journal, May 1989, vol. 89, No. 5: 530 -542.

1) appropriateness of instructional materials, 2) competency of teachers, 3) adequacy of facilities, 4) pupil:teacher ratios, and 5) methods of screening and selecting participants. Based on his second findings, program adjustments were made in the five areas for the 1967-68 school year. Based on his study, the results of the changes were increased gains in reading at the end of the school year, demonstrated by the difference between pre- and post-test scores. Of the students in the program, 288 gained four years, 41 gained five years, 7 gained six years, and 6 made gains of seven to seven and one-half years. [52]

In New Jersey, Stephen Koffler analyzed New Jersey's Title I programs for the 1975-76 school year to determine the distribution and effect of dispersal and usage of funds on immediate short term educational achievement. The data presented was based on results of the 1975 New Jersey Educational Assessment Program in grades four, seven, and ten.

The New Jersey districts were divided according to eight variables contributing to socioeconomic status. Reading and language experience programs were analyzed for cost of program per pupil, average instructional salary, pupil:teacher ratio, and percentage of Title I participation. Results in reading programs indicated that average scores decreased as cost per pupil and pupil:teacher ratios increased. The study concluded that schools with small well-paid staff with many students appeared to do the poorest.[53]

The Title I Office of the New Jersey State Department was also interested in determining the effectiveness of Title I language experience (reading) programs. In

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[52] Edward Steirnagle, "A Five Year Summary of A Remedial Reading Program," Reading Teacher, 24, March 1971: 537-543.

[53] Stephen Koffler, "An Analysis of ESEA Title I Data in New Jersey," New Jersey State Department of Education, 1976.

1976, the department tabulated achievement data collected from districts reporting results in terms of grade equivalent scores. The majority of districts indicated that at the conclusion of the 1975-76 school year, the average gains were seven months or more using post minus pre-test differences. Gains as high as 10.1 months were also reported. However, because a variety of measurement instruments and testing schedules were used, it was found that sound conclusions regarding the impact of the programs could not be drawn.[54]

As a follow up, The New Jersey ESEA Title I Evaluation Report in 1978 reported that according to the grade equivalent data tabulated from the 1977-78 program, most participants demonstrated substantial immediate gains. Of the 18,072 students state-wide who received remediation in reading, 65.14 percent demonstrated a post minus pre-test gain of seven months or more, and 47.18 percent made gains of ten months or more. Close review of this data by technical consultants enabled the department to discard incomplete and inaccurate data submitted by several districts. It was also determined that norm curve equivalent (NCE) scores would be utilized by all districts in future studies.[55]

In 1979, the National Institute of Education reported that Title I funds were in fact supplementing and not supplanting educational programs. The National Assessment for Educational Progress (NAEP) reported that significant gains in reading were made during the ten year period from 1970-1980. The performance of southeastern nine year olds in reading improved 7.5 percent. Rural and disadvantaged urban children made

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[54] Ibid.

[55] New Jersey Department of Education, New Jersey ESEA Title I Evaluation Report, Fiscal Year 1976, 1976, 11-13.

gains of 6 percent and 5.2 percent respectively. Nationwide, Black nine year olds demonstrated gains of 9.9 percent (Britell p. 30)[56]

Lawrence J. Kilian and Edward Kagen conducted a study on "The Long Term Effects of the ESEA Title I Reading Program on Reading Achievement". The model of evaluation they employed looked at students from the White Plains, New York schools from 1974-1978 by examination of the number of students who fell below the national 23d percentile. By using this procedure, the researchers wanted to measure the effect of the program both in terms of achievement of Title I students and in terms of the effectiveness of the selection process. In addition, the project examined the achievement of students who had been served by Title I for at least one year.

District-wide achievement scores were utilized; however, care was taken to determine the chance mean and floor effects on the district-wide test. Results of the study indicated that at the end of the examination period, less than the expected 23 percent of the Title I students fell at or below the national 23d percentile. In fact, only 14 percent of the districts' students fell in that category. Therefore, the researchers concluded that the White Plains program was effective, especially in remediating many students before the third grade. However, satisfactory achievement at the third grade level did not insure continued satisfactory progress through the sixth grade. In a further analysis, the study concluded that of those students served by Title I for at least one year, less than half (43 percent) reached the point where they were reading less than one year below grade level. [57]

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[56] National Assessment of Educational Progress, The Reading Report Card. Progress Towards Excellence in Our Schools: Trends in Reading Over Four National Assessments, 1971-1984, Report No. 15-R-01, (Princeton, New Jersey: Educational Testing Service,) 1985.

[57] Lawrence J. Killian, and Edward Kagen, "The Long Term Effects of the EESA Title I Reading

The Columbus Public School system, however, was one of the first to initiate longitudinal sustained effects studies on the academic achievement of its Chapter I students. Using existing pupil records, information was obtained for a five year period regarding students who in 1979-80 at grade one were enrolled in the Chapter I programs and received other categorical and special education services. The entrance criteria for Chapter I services beyond the socioeconomic factor was a score below the 33d percentile (1979-80) or below the 36th percentile (1982-83) on a nationally standardized norm-referenced test of reading achievement.

In 1989, Carolyn S. May and Jacquelyn L. Farha completed a longitudinal study of the Chapter I Pre-kindergarten program in the Wichita, Kansas public schools. The study reported on students who were in the four year old program for at least 100 days during the 1982-83 academic year and who remained in the school system for five years through the 1986-87 term. Using a one-way analysis of variance, their findings concluded that there was no statistically significant difference in the ITBS scores in reading and math for second and third grade students who were program participants when compared to test scores of students from similar socioeconomic areas.[58]

The study, conducted by Richard Amorose and others, provided findings on eleven research questions, including how former program participants score on achievement tests after program participation, and if there was evidence that the gains made while in the Chapter I program were sustained over time.

Program on Reading Achievement," Paper Presented at the American Educational Research Association, Los Angles California, 1981.

[58] Richard Amorose, et. al., "Analysis of School District Records to Study the Effectiveness of Chapter I Programs and to Conduct a Longitudinal Study of Students Involved in Chapter I Programs Over a Five Year Period: A Final Report," (Columbus, Ohio: Columbus Public Schools Department of Evaluation, September 1986).

The post-test given to Chapter I students all five years of the study was the Reading Survey test (Form JS) of the Metropolitan Achievement Test, the 1978 edition. The longitudinal test administered was the Reading Comprehension test of the Comprehensive Test of Basic Skills (CTBS; 1968). NCE's were used for all analysis.

Test errors were considered and confidence intervals were developed in order to make fair comparisons of the achievement level change from post-test to longitudinal tests. The confidence interval was plus or minus one standard error of the measurement expressed in NCE points. When post-test means and longitudinal means were being compared, the confidence interval was based on the standard error using the mean as if it were a pupil's score.

The data analyzed for students who took the longitudinal test in the grade that was appropriate for the study year indicated that there was only a slight difference in the post-test and longitudinal test. This difference was well within the confidence interval so that on average the Chapter I gains were sustained. Results further indicated that, except for the group that remained in Chapter I for four years, the average NCE for all other groups was above the 33 percentile. Students who took the longitudinal test as fourth graders in the fifth year of the study had a longitudinal mean that exceeded the post-test mean. [59]

In a follow up study in Columbus, Roger Brown reported on the sustained effects of Chapter I on a group of 3,338 elementary and middle school students. The purpose of the study was to determine the degree to which pupils participating in the

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[59] Carolyn S. May and Jacqueline L. Farha, "A Longitudinal Study of the Chapter I Pre-kindergarten Program in the Witchta Public Schools." Kansas, Paper Presented at Annual Meeting of the American Educational Research Association, San Francisco, California, March 1989.

Compensatory Language Experiences and Reading program (CLEAR) remained at least at the same level from spring of the treatment year until fall of the next school year.

The results indicated some decline in all grade levels in reading during the summer months, with grade six having the greatest percentage of pupils who maintained their achievement level from the spring. The greatest net gains reported from fall 1985 to fall 1986 were noted for first grade Reading Recovery participants and second, third and sixth grade CLEAR students. Pupils from these grade levels substantially improved their fall 1986 achievement levels by spring 1987.

The study design included a fall-spring-fall testing schedule with an additional spring test for a sub-sample of students. The average pre-test-post-test NCE gain for students in the sub-sample who had an April 1987 test score was 6.7 points. When sustained effects testing was completed in April 1987, the average NCE was 6.1, which depicts a drop of 0.6 points. Of the 2,989 students in the sub-sample, 47.9 percent maintained or exceeded their NCE post level on the April 1987 sustained effects test. [60]

As a follow up to a study conducted in 1982, Richard N. Claus and Barry E. Quimper completed the second report of a series of studies developed for the city school district of Saginaw, Michigan. This 1985 study was conducted to measure the effects of the Chapter I program, entitled Academic Achievement (A2), on the academic achievement of fifth grade students from 1983 -1985.

The study was designed to achieve two primary goals: 1) the evaluation of the long-term sustained impact of the Chapter I program on both participating and former student participants and 2) to meet the evaluation requirement of Chapter I.

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[60] Roger Brown, "Report of the Chapter I Sustained Effects Study," (Columbus, Ohio: Columbus Public Schools Department of Evaluation, July 1987).

Three different standards were used to gauge the growth of four groups of students, three of which were receiving compensatory education. A total of 463 students were classified into groups dependent upon whether they received services for a single year, multiple years, continuous participation, or whether they were in the regular education program. The cohort of Chapter I pupils who had been in the A2 program as third, fourth, or fifth graders were selected as the subjects of the study.

The standards used focused on normal curve equivalent scores, normal growth, and relative growth. Reading achievement was measured by the 1977 version of the California Achievement Test (CAT). Using the NCE score gain, program participants had pretest scores at or below the 44 NCE for A2 designation. Normal growth was defined as an estimate of how well students would perform in the absence of any special program. The 1982 CAT results served as the pretest and the spring 1985 CAT test results served as the post-test when the concept of "normal growth" was employed to determine the percent of gain beyond "normal growth."

The final standard involved the calculation of a Relative Growth Index (RGI). This index indicated the percentage increase or decrease of the sustaining effect group (A2 participants) and a regular education group with no prior compensatory education participation. To calculate this index, the comparison groups' pre- and post-test standard deviations were pooled. The growth of the project group was then expressed as a percentage of the growth of the comparison group. A comparison between the mean pre-post achievements levels between the two groups was reported. The researchers hypothesized that the gap between the two groups would stay the same (sustaining) or be reduced as a result of A2 program participation.

The results indicated that the single and multiple year groups failed to meet the criterion score in reading thereby failing to equal or exceed the growth of the regular education students. The the continuous group RGI exceeded the regular education comparison group. All groups exceeded normally expected reading growth. In the index that compared the compensatory group to the regular group, only the continuous group showed a decrease in the gap between their group and the comparison group. [61]

In a similar manner, a five year study was conducted in the Philadelphia, Pennsylvania school district during the 1989-90 school year. Stephen H. Davidoff and Ellery M. Pierson presented an achievement summary, based on their study of the Philadelphia Schoolwide (SWPs) program funded through Chapter I. Data on attendance, report card grades, and NCE gains for 37 schools from the first SWP cohort were reviewed and an initial examination was made of the 24 second cohort schools which began implementation in the 1989-90 school year.

One of the differences in this study from others previously presented is that Philadelphia took advantage of a provision inserted in the 1983 Chapter I authorization (SWP), which permitted districts to ignore student socioeconomic eligibility requirements in those schools where 75 percent or more of the students were from low income families. Although a matching funds provision was included in this criteria, it was later discarded under the July 1988 re-authorization proceedings. This enabled districts to provide intervention to all students who qualified on an academic basis regardless of their socioeconomic status.

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[61] Richard Claus and Barry Quimper, "Long Term Continuous and Sustained Effects on Chapter I Participants 1983-85Evaluation Report," (Saginaw, Michigan: ,Saginaw Public School Department of Evaluation, August 1987).

Relative to reading achievement, student progress was monitored using multiple indicators including: 1) state-required measures of desired outcomes, 2) participation in Chapter I Program Improvement, 3) project level NCE change scores and percent of success, 4) report card marks, 5) five year achievement summaries, and 6) average daily attendance (ADA).

The study results indicate that SWP sites continue to outperform non-SWP Chapter I sites. From Spring 1988 to Spring 1989 gains in reading averaged 4.97 NCEs. SWP students also showed improvement in report card grades across the major curriculum areas as well as improvement in the students' ADA. Comparisons of June 1988 and June 1990 report card marks of all students for four basic subject areas showed improvement in the majority of Cohort I sites in each major curriculum area. The percentage of students obtaining letter grades of A,B, or C increased in 23 sites in Reading (62 percent). The five year reading achievement results for Cohort I SWP sites exceeded the three year pre-program average.[62]

In a study reported in 1988, Stephen H. Davidoff examined the sustained effects of the Chapter I program implemented in Philadelphia, Pennsylvania schools from 1986-1988. One element of the study was to assess the impact on reading achievement for students who were program participants for two consecutive years and for students for whom programming had been withheld for one year following program participation. Davidoff selected an evaluation cycle that consisted of pre, post, and sustained effects tests within the three year cycle.

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[62] Stephen Davidoff and Ellery Pierson, "A Continued Look at the Promise of Schoolwide Projects," (Philadelphia, Pennsylvania: Philadelphia Office of Research and Evaluation, April 1991).

For the purposes of this study, achievement was examined on the basis of short term and long term patterns relative to the tests administered and expressed in NCE's. Short term achievement patterns were indicated when continuous achievement gains were characterized by a steady increase at each of the testing times; or when the students' scores increased from pre-test to post-test but remained at approximately the same level at the third testing point; or where scores increased from pre-test to post-test, but declined over the following year. Long-term achievement loss occurs when the sustained effect score is lower than the pre-test score or long term gain, whereas the sustained effects score is higher than the pretest score.

The results indicated that: 1) students served in the program for two consecutive years demonstrated a pattern of continuous achievement gains and 2) students in the program for one year demonstrated a pattern of non-sustained gains.[63]

Judy Pfannesnstiel completed a study in 1987 that analyzed the categorical program participation and long-term effects of Chapter I services in St. Louis, Missouri and Lincoln, Nebraska. Of particular note were the characteristics of the school districts. St. Louis placed a good deal of emphasis on early intervention and remediation which resulted in the delivery of services at increasingly earlier grade levels. Lincoln, on the other hand, focused on the lowest achieving students regardless of grade levels. This resulted in a relatively equally distributed program.

In terms of ethnic minority representation, the characteristics of both programs were comparable to the characteristics of the district populations and there did not appear

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[63] Stephen Davidoff, "Sustained Effects: Measuring the Impact of Chapter I Over Time, 1986-1988," (Philadelphia, Pennsylvania: Philadelphia Office of Research and Evaluation, November 1988).

to be over representation in either state. In addition when viewed over time, participation in the reading programs tended to be more male dominated.[64]

A five year cross-sectional pattern of achievement across grades and years in St. Louis revealed that Chapter I students scored between the 34th and 43d NCE while non-participant students scored approximately five to ten NCE's higher. Cross sectional achievement in Lincoln schools demonstrated a much higher performing Chapter I population as well as a higher non-participant population. The lowest performing Chapter I students in Lincoln performed comparably to the highest performing Chapter I students in St. Louis.

In addition to a number of findings related to the coordination of categorical programs for Chapter I students, Ms. Pfannesnsteil reported that: 1) the average achievement level of Chapter I students in both states varied with the length of participation, 2) the longitudinal achievement of the first grade cohort of Chapter I participants remained relatively stable over time, and 3) in St. Louis over a five year period 60 percent of the Chapter I students compared to 9 percent of non-recipients of Chapter I services have been retained in a grade. [65]

Policy issues and their impact on Chapter I students was the focus of a study completed by Augustine McDaniel in 1986. In the Atlanta public school system, a policy on student academic achievement and retention was developed and implemented in 1980-81. At that time the Pupil Progression Policy effected only first grade students, but by 1984-85 it was expanded to include grades one through five.

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[64] Judy Pfannenstiel, "Analysis of Categorical Program Participation and Long Term Effects," (Philadelphia, Pennsylvania: Research and Training Associates, Inc. , 1987).
[65] Ibid.

The policy determined a plan of progression based on the expectations that the vast majority of students receiving appropriate instruction and motivation would make satisfactory progress through the various levels of instruction. It was expected that the average student would achieve a level of academic proficiency and emotional development which would enable him/her to benefit from individualized instructional programs for students of their age level. If individuals did not accomplish a minimal mastery level of reading and mathematics skills by the end of the school year, that student would be retained and receive top priority for available resources including Chapter I intervention.

The data collected included school system records of California Achievement Tests and NCE's. The results showed that 1) 34 percent of all students were retained one or more times during the study period, 2) the lower scores of retained students remained lower over the testing period though some gains did occur, and 3) grade retention plus Chapter I remedial instruction resulted in academic growth. The study suggests that the high percentage of retained students should be examined further and research should be conducted which focuses on the retention's effects on the student's social adjustment and self-concept.[66]

One of the most provocative projects completed on the effectiveness of Chapter I services was conducted by Mary Kennedy and others in 1986 for the Office of Educational Research and Improvement in Washington, D.C. The project was mandated by Congress and was the second evaluation of this Federal compensatory program. Of

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[66] Augustine McDaniel, "The Long Term Effects of the Pupil Progression Policy on Academic Achievement," (Educational Research Association, April 1986), p. 16-20.

the thirteen central findings of this report, ten are pertinent to the topic of the current research project.

The project analyzed national data and is interpreted to represent general trends which did not apply to any particular project, school district, or school or children. The data used to describe achievement gains of Chapter I students were reported by state educational agencies for the 1983-84 school year. In addition, data collected in 1976 and 1979 was also utilized.[67]

Based on a study by LaPointe and Riddle in 1984, reports by the National Assessment of Educational Progress (NAEP) and a report by the Congressional Budget Office (CBO), a central finding in this project is that the achievement of disadvantaged students has improved since 1971, especially relative to the achievement of the general population. Figures 1 and 2 are a graphic representation of these findings.[68] It is important to note that these findings on national data are reflective of ethnic as well as type of community categorization. The report conceded that many events occurring during this time period may account for these trends; however, because of the nature of the Chapter I program and the increased focus on accountability, it is likely that compensatory education has been a major contributing factor to the improvement of achievement for disadvantaged students.

Concerning achievement test scores and compensatory education, the report concludes that students receiving Chapter I services experience larger increases in their standardized achievement test scores when compared to students who do not receive

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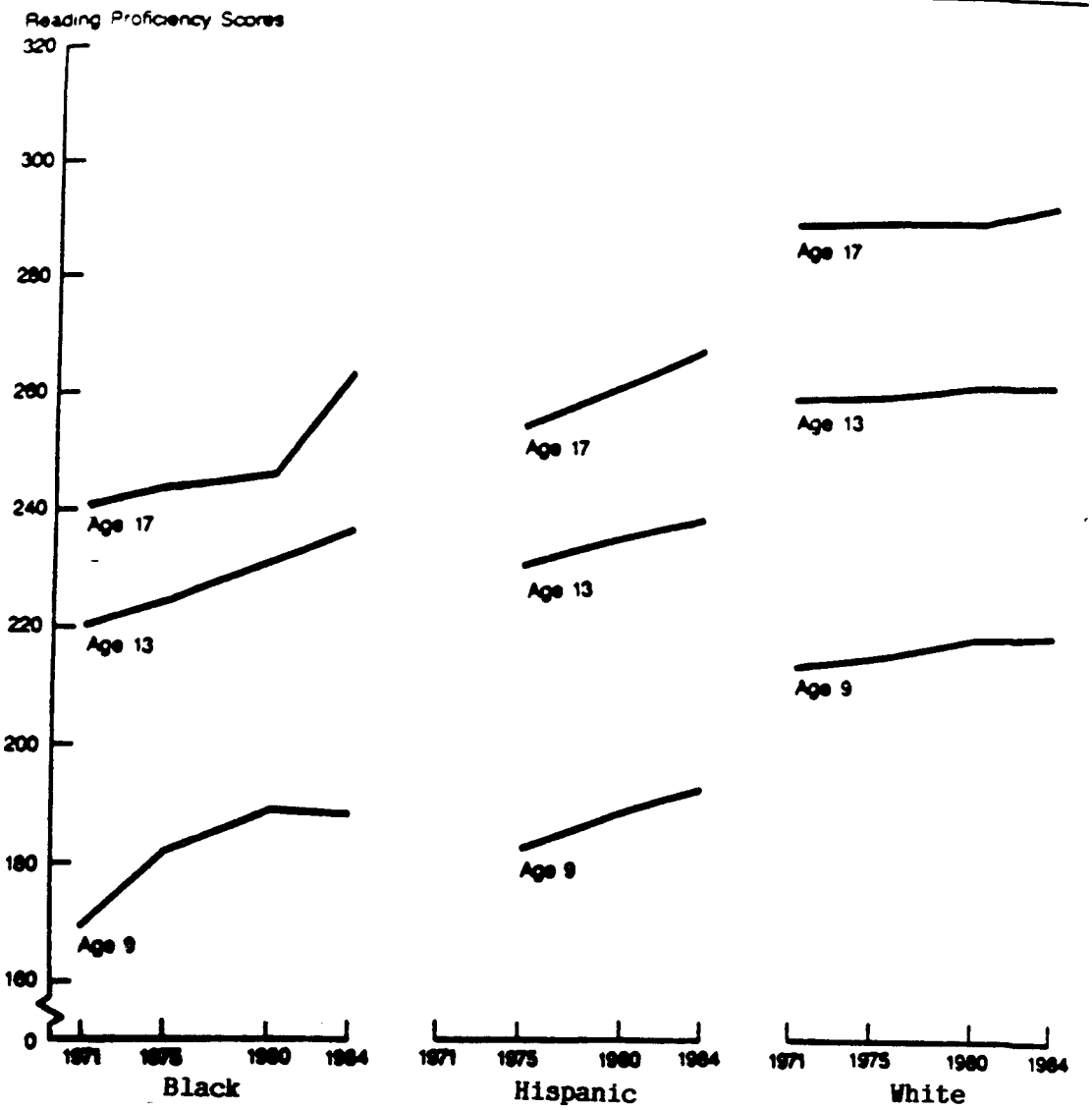
[67] Mary L. Kennedy, "The Effectiveness of Chapter I Services: A Second Interim Report From the National Assessment of Chapter I," Office of Educational Research Improvement, Washington D.C., 1986, p. 12.

[68] Ibid, 10, 12, 14.

FIGURE 1

Trends in Average NAEP Reading Proficiency Scores* for Black, Hispanic, and White Students



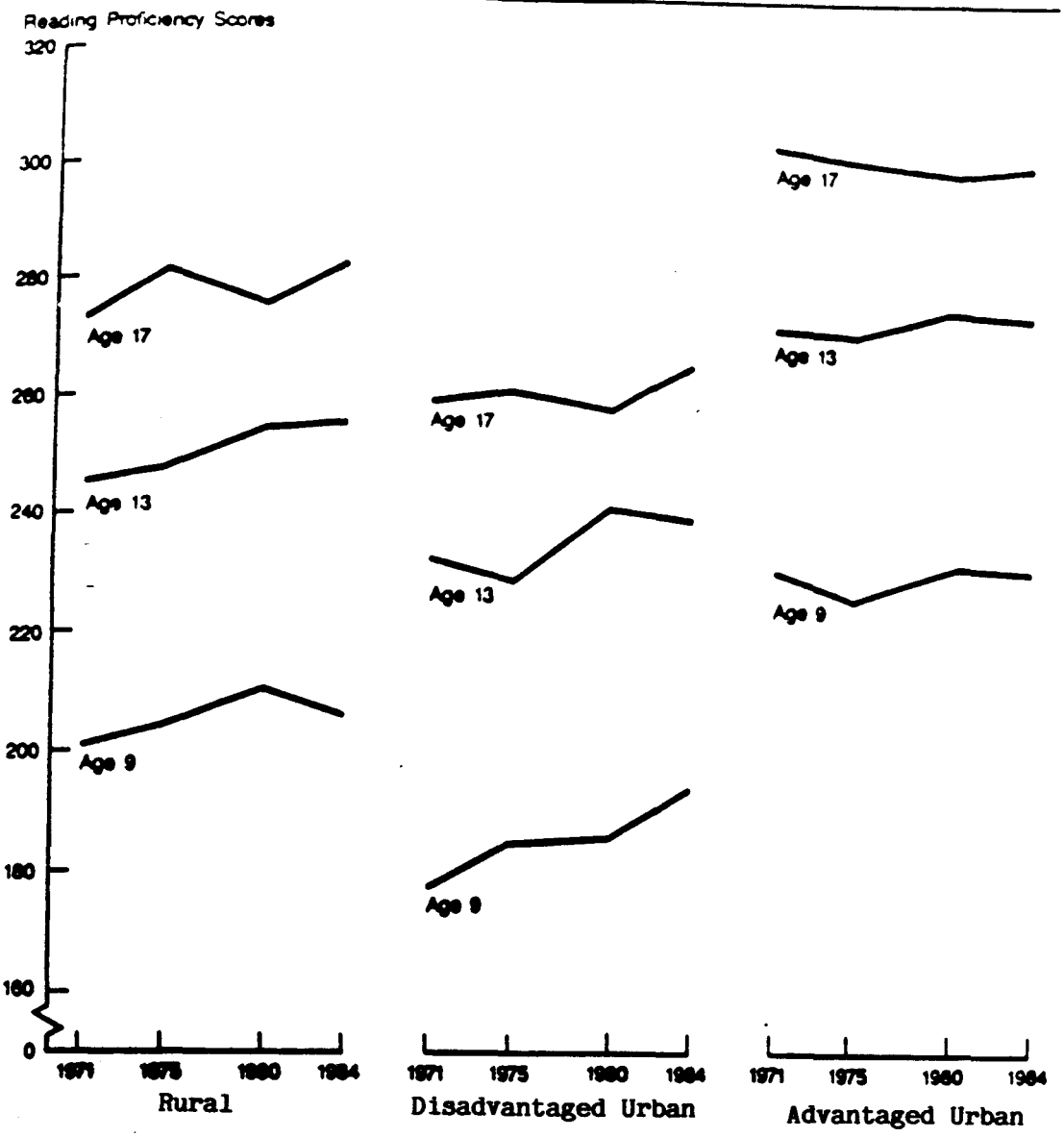
The average reading score of black 9 year olds was approximately 169 in 1971 and 188 in 1984, a gain of 19 points. The average score of white 9 year olds was 214 in 1971 and 220 in 1984, a gain of 6 points.

*These scores are derived from item response theory. Based on a scale that ranges from 0-500, these scores provide a common scale on which comparisons can be made for different age and test groups. Scores on the scale relate to five levels of proficiency: rudimentary (150), basic (200), intermediate (250), adept (300), and advanced (350).

Source: National Assessment of Educational Progress, *The Reading Report Card, Progress Toward Excellence in our Schools: Trends in Reading Over Four National Assessments, 1971-1984.* Princeton: Educational Testing Service, 1985.

FIGURE 2

Trends in Average NAEP Reading Proficiency Scores* by Type of Community



The average reading proficiency score for 9 year olds in rural communities was approximately 201 in 1971 and 206 in 1984, a 5 point increase. In disadvantaged urban communities, 9 year olds 178 in 1971 and 194 in 1984, a 16 point gain. In advantaged urban settings, 9 year olds scored 231 in both 1971 and 1984.

*These scores are derived from item response theory. Based on a scale that ranges from 0-500, these scores provide a common scale on which comparisons can be made for different age and test groups. Scores on the scale equate with five proficiency levels: rudimentary (150), basic (200), intermediate (250), adept (300), and advanced (350).

Source: National Assessment of Educational Progress, *The Reading Report Card, Progress Toward Excellence in our Schools: Trends in Reading Over Four National Assessments, 1971-1984.* Princeton: Educational Testing Service, 1985.

services. Their gains, however, do not move them substantially toward the achievement levels of more advantaged students. [69]

Another central finding was that students in early elementary Chapter I programs gained more than student participants in later grades. These conclusions are based on data collected and reviewed from two sources: The Title I/Chapter I Evaluation Reporting System (TIERS) and the Sustaining Effects Study.

TIERS was the framework utilized for states and educational agencies to report comparable data to the U.S. Department of Education. The system includes a standardized procedure for reporting the number of participating students as well as measuring the impact of the services provided. This process then permitted the aggregation of project data at state and national levels. It is noted that this process was discontinued in 1981 when requirements for any standardized procedure was eliminated.

Using percentile ranks, the data indicated that students entering the Chapter I reading programs tended to have lower scores initially. However, by the end of a school year nearly all students had upward movement in percentile ranks of average scores. The size of these increases was often only a few percentile ranks and Chapter I students continue to be far from the median or 50th percentile rank. [70]

The data also revealed that Chapter I students in the later grades appear to start with a greater educational disadvantage at the beginning of the school year and gained less than participating students in the early grades.

The Sustaining Effects Study (SES) examined Title I programs in grades one through six in a representative sample of schools. Researchers measured student

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[69] Ibid, 17.
[70] Ibid, 18.

achievement before and after one school year and then followed a subset of students over two additional years. Sustaining Effects data, which was collected eight years earlier than the TIERS data, was translated into percentile ranks in order to compare the results with the TIERS data. Figures 3, 4, and 5 represent portions of the collected data for both TIER and SES studies in 1976-77 and 1983-84. [71]

A comparison indicated that Title I students were comparable in their starting achievement levels, but the TIERS data showed greater gains than the SES data. These two sources were similar in reporting that greater gains were made in the earlier grades.

As previously indicated, these results indicate trends and generalizations rather than absolutes. Figure 6 demonstrates the variability of outcomes related to reading 1983-84 that were taken into consideration within the report.[72]

Program effects on students' attitude towards school was another issue addressed in the study based on the premise that student attitudes may be more important to student achievement in the long run than short-term achievement gain. Researchers used two studies to investigate this impact on Chapter I participants. The Instructional Dimensions Study (NIE, 1976; Cooley, 1978) and the Sustaining Effects Study both measured student attitudes toward school in addition to student achievement gains.

The Instructional Dimensions Study's analysis of student attitudes revealed no significant changes from fall to spring in either grades one or two. However, students did exhibit very high scores on the attitude instrument in the fall, so there was little room left for increased scores by spring.

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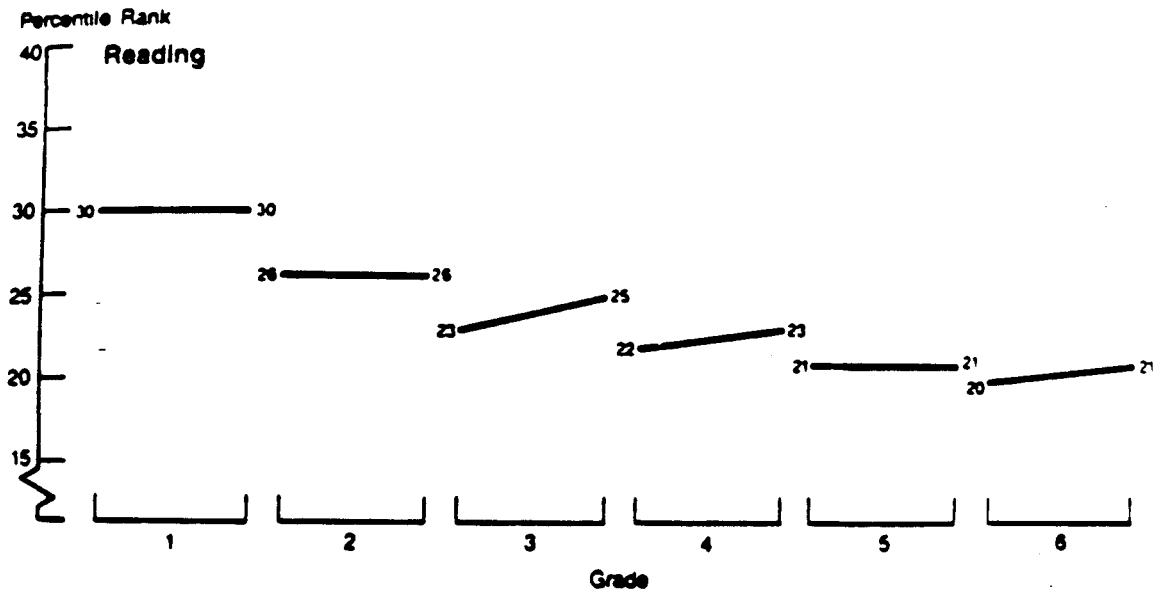
[71] Ibid, 21, 26, 27.
[72] Ibid, 38.

FIGURE 3

Changes in Percentile Ranks for Title I Students in Reading and Mathematics, The Sustaining Effects Study, 1976-77*



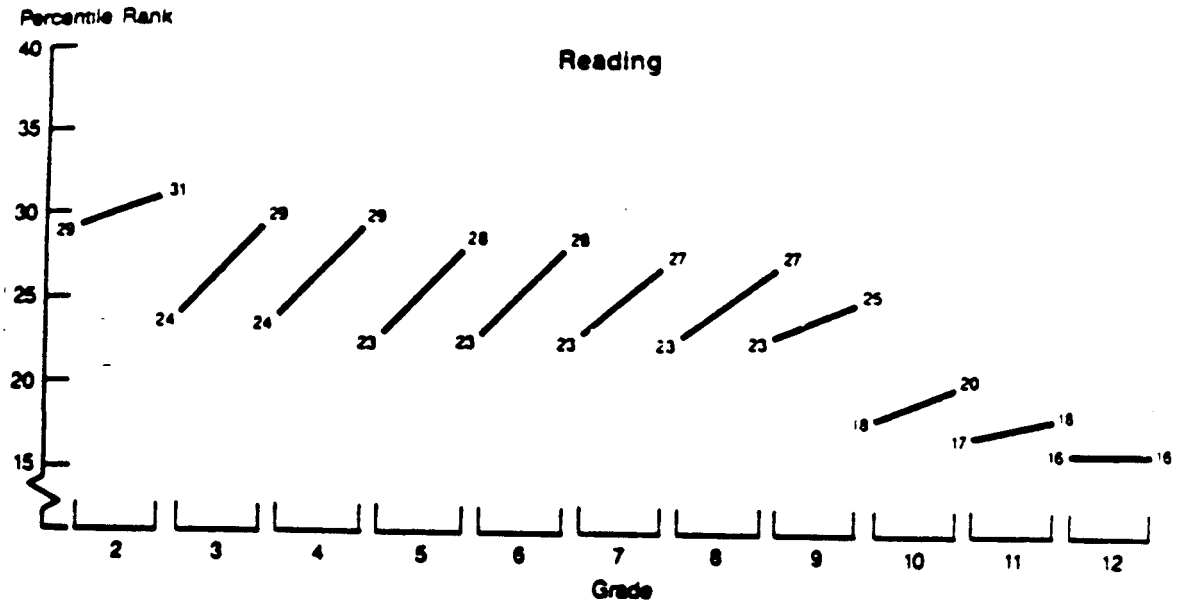
From the fall to the spring testing, 3rd grade students enrolled in Title I reading moved from the 23rd percentile rank to the 25th percentile.

*Percentile ranks presented are based on scores from a fall-spring testing cycle in contrast with the spring-spring cycle used for TIERS data. Changes in percentile ranks were calculated by first determining all averages in a standardized scale score metric, and then converting these averages to percentile ranks.

Source: M. Wang, M. Bear, J. Conklin, R. Hoepfner, *Report 10: Compensatory Services and Educational Development in the School Year.* Santa Monica, CA: System Development Corp., 1981.

FIGURE 4

Changes in Percentile Ranks* for Chapter I Students**
In Reading and Mathematics, 1983-84



From spring 1983 to spring 1984, the percentile rank of second grade students who received Chapter 1 reading instruction increased from the 29th percentile to the 31st, while the rank of 12th grade students remained constant at the 16th percentile.

*Changes in percentile ranks were calculated by first determining all averages in normal curve equivalents (NCE's), a standardized scale sore metric, and then converting these averages to percentile ranks.

Source: M. a. Carpenter and P. A. Hopper, *Synthesis of Chapter 1 Data: Summary Report*, Reston, VA: Advanced Technology, 1985.

FIGURE 5

Gains of Title I Students as a Proportion of Gains of Other Students (From Table 3.1)

	Title I Student Gains as a Proportion of [1]	
	Representative Sample Gains	Needy Student Gains
Reading		
Grade 1	90%	119%
2	98	110
3	105	121
4	109	102
5	90	112
6	100	100
Math		
Grade 1	101%	126%
2	96	114
3	93	110
4	107	114
5	97	126
6	110	131

1/ **Title I student gains shown in Table 3.1 are shown here as proportions of the gains of other groups.**

Source: M. Wang, M. Bear, J. Conklin, R. Hoepfner, *Report 10: Compensatory Services and Educational Development in the School Year.* Santa Monica, CA: System Development Corp., 1981.

FIGURE 6

Range in State-Reported Average Gains* of Chapter 1 Students in Reading and Mathematics in Grades 2 Through 12, 1983-84

	Reading		Mathematics	
Grade	Average gain	Range of State averages	Average gain	Range of State averages
2	1.0	-5.7 to 7.9	3.2	-1.2 to 11.5
3	3.0	-0.5 to 6.0	3.2	-2.5 to 11.4
4	2.9	-0.9 to 9.8	3.1	-2.1 to 7.8
5	3.1	-0.9 to 8.8	4.4	-3.0 to 9.0
6	3.2	-0.8 to 6.9	4.0	-2.8 to 6.7
7	2.5	-1.4 to 6.6	3.5	-1.0 to 6.4
8	2.4	-1.8 to 5.3	3.1	-1.1 to 7.6
9	1.8	-0.4 to 9.5	0.7	-2.1 to 15.7
10	1.1	-1.8 to 6.7	0.5	-1.9 to 2.7
11	0.3	-4.7 to 1.7	1.1	-2.8 to 3.5
12	0.3	-5.5 to 2.8	1.9	0.6 to 4.3

From spring 1983 to spring 1984, second grade Chapter 1 students on average gained 1.0 NCE in their reading and 3.2 NCEs in their mathematics scores. However, Sate gains in average reading scores ranged from -5.7 to 7.9 NCEs while in mathematics they ranged from -1.2 to 11.5 NCEs.

Source: M. a. Carpenter and P. A. Hopper, *Synthesis of Chapter 1 Data: Summary Report*, Reston, VA: Advanced Technology, 1985.

The SES study yielded inconsistent patterns in the attitudinal changes of participating and non-participating students across six grade levels and two subject areas. These results became more complicated by overall changes in student attitude where all students improved attitudes in one grade but became more negative in another grade. Based on the analysis and results of these two studies, the report suggests that evidence regarding program effects on students' attitudes toward school is inconclusive.[73]

In an effort to assess long term program effects, the study also reports on a number of other issues. The findings in this area, relative to this study, are summarized as follows:

It appears that students who discontinue Title I gradually lose gains they made when receiving services. In examining data on students who were program participants for one or two years with no support in the following year, the SES indicates that students gain more than expected during Title I participation, but these gains do not accommodate students' future learning demands.

The report also cites an additional study undertaken by the Chapter I Technical Assistance Center to assess the sustained achievement of program participants. Using standardized achievement test data collected in spring 1982 and spring 1983, the researchers examined achievement patterns of over 66,500 second through sixth grade students in seventeen school districts or state agencies. The results of this project were similar to the Sustained Effects study and indicated that students who were never in Title I had higher, relatively stable achievement scores over time. Of the participating Chapter I students, those who participated during both years had the lowest scores, though they

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[73] Ibid, 40.

showed small gains during the year of participation. Those participating during one of the two years scored between these other two groups. Those participating during the first year and not the second, exhibited declines during the second year. However, second but not first year participants exhibited gains during the second year. Figure 7 of the reading component illustrates this pattern as reported in the 1982-83 data. [74]

In its final analysis of the studies described, the Chapter I study concluded that the evidence presented indicates that the achievement test scores of disadvantaged students tend to decline, when compared to those of more advantaged students, as they progress through the grades. Chapter I assistance during the school year appears to raise the achievement levels of some students and helps others maintain their relative position. However, once students leave the Chapter I program their scores again decline.

Another finding cited in the Chapter I study is that student participants with very low achievement levels appear to maintain their relative achievement position while in the program but do not move ahead. However, it is conceivable that these students would have lost ground if they had not received services.

The evidence examined in the study indicates that the lowest achieving students receive multiple years of service and that while their achievement scores rise from year to year, the increases are not enough to substantially alter the students' academic standing. Therefore, it appears that they continue at relatively low achievement levels. The study further suggests that, because the learning curves of low achieving students differ from those of higher achieving students, it is difficult to estimate the extent to which Chapter I services have benefited their lowest achieving participants. It would

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[74] Ibid, 47.

FIGURE 7

Achievement of Students by Pattern of Participation
In Chapter I Across Two Years, 1982-83

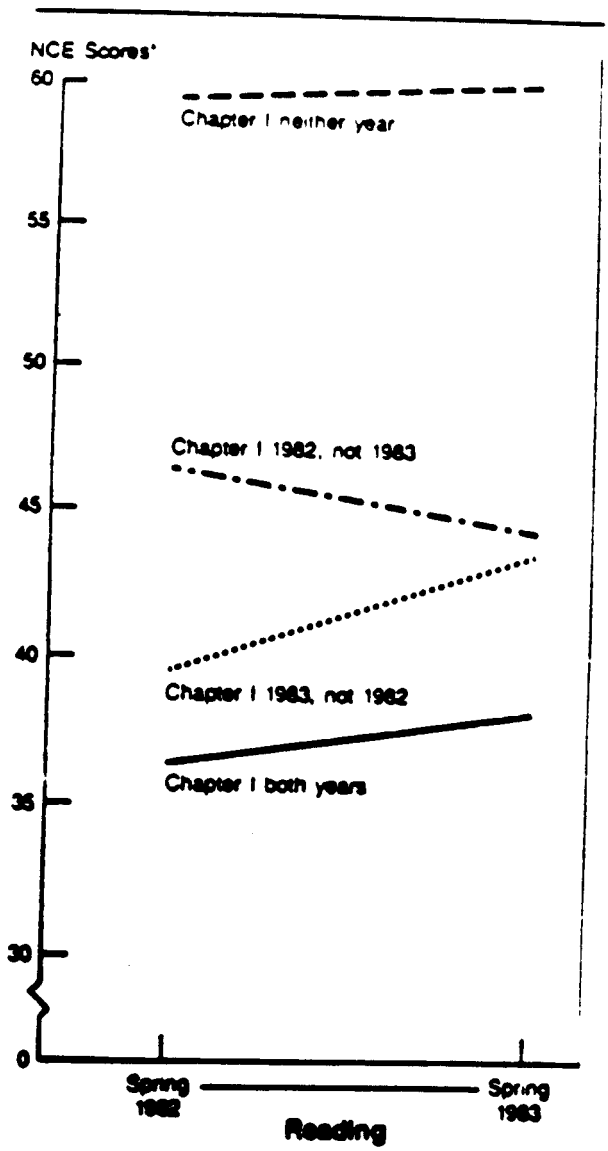

Figure 7 reads:

From the spring of 1982 to the spring of 1983, students who received no Chapter 1 services in either school year had average NCE scores of slightly less than 60, and demonstrated slight gains between spring 1982 and spring 1983 in both reading and mathematics.

Source: R. Gabnel, B. Anderson, G. Benson, S. Gordon, R. Hill, J. Pfannenstiel and R. Stonehill, *The Sustained Achievement of Chapter I Students.* U.S. Dept. of Education, January 1985.

seem that these students would have fallen further behind if they had not received these services. What appears to be no impact on student achievement may in fact represent an impact - that is, students have not fallen further behind.[75]

Given the nature and history of the Chapter I program it is interesting to note another finding of the study which concludes that no nationally representative study has examined the long-term effect of Chapter I programs on graduation rates, future education, or adult literacy.

While research indicates that some Chapter I students continue to experience a range of difficulties, information about long-term effects of participating in these programs is unavailable. The study suggests that one reason for this lack of information is the variability of the nature of Chapter I programs and the difficulty of keeping track of former students and their educational experiences over a long period of time.

A final central finding of the report tangential to this project is the fact that large-scale studies designed to identify particular project characteristics that improve student achievement test scores have yielded inconsistent or inconclusive findings.[76]

Chapter I services have been provided to identified students for more than twenty years and the resources allocated to funding a program with varying gains has been the topic of many debates. The report suggests that "evidence on long term program effects and on the learning rates of different kinds of children suggests that the problems of educational disadvantage are much more difficult to solve than the original designers of Title I had assumed."[77]

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[75] Ibid, 65.
[76] Ibid, 73.
[77] Robert Slavin, "Making Chapter I Make A Difference," Phi Delta Kappan, October 1987, 110 - 119.

In an article entitled "Making Chapter I Make a Difference," Robert Slavin, Director of Elementary Programs at the Center for Research on Elementary and Middle Schools, Johns Hopkins University, Boston, discusses the Chapter I track record and proposes that, given its design, the traditional programs are simply not adequate for the job they are supposed to do. He suggests that:

> "The best designed studies comparing students who received Chapter I services to similar students who did not receive these services show effects on the order of one to three percentile points and best. And even these small effects are largely limited to the primary grades."[78]

In a similar article, "Chapter I Program Improvement: View from the Grassroots," JoAnn Brown, a Chapter I teacher in Topeka Kansas, describes her experiences as it relates her school's Chapter I program. In citing the research she has conducted, she states that "gains by students receiving Chapter I service have been real and measurable but have not been sufficient in most cases to make their school careers and success."[79]

She describes her district's response to the new Chapter I guidelines provided by the Hawkins-Stafford Amendments authorized in 1988. These amendments included a new accountability provision called "program improvement." The new guidelines included requirements for multiple measurements and alternative evaluations; however, school improvement would be based on standardized test scores. Chapter I programs are now being evaluated on the basis of year to year aggregate gains by students on norm-referenced standardized tests. Schools who do not meet their state's standard of at

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[78] Ibid, 110.
[79] Ibid, 65

least > 0 NCE gain are identified for program improvement. [80] Identified schools must submit plans that specify programmatic changes designed to improve test scores. Chapter I Technical Assistance Centers were developed to assist schools in the planning and implementation of these new plans.[81]

Ms. Brown's school was in program improvement in 1990. One year after implementation of a new program developed in concert with the school's Chapter I team students test scores reached >4 NCE's average aggregate gains. She reports that there were also measurable gains in the students' ability to use appropriate strategies, which would enable them to become more successful readers.[82]

Elfrieda H. Hiebert, of the University of Colorado, offers some of the most recent issues related to Chapter I effectiveness. In her book, entitled Getting Reading Right From the Start, Hiebert supports the theory that:

> The students who are most likely to get off to a poor start in literacy, and remain in the bottom half, are those who come from low-income homes. Chapter I, the program designed to give poor children a chance to catch up with their higher-income peers, has not been doing the job."[83]

She reports that according to the Educational Testing Service (ETS), reading levels of Chapter I children have not changed appreciably since the early 1970's.

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[80] JoAnn Brown, "Chapter I Program Improvement: View from the Grassroots," The Delta Kappa Gamma Bulletin, Fall 1991, 23 - 30.

[81] Ibid, 24.

[82] Ibid, 24.

[83] Elfredia Heibert, Getting Reading Right From the Start, University of Bolder Colorado, 1992.

According to Kennedy, Birman, & Demaline in 1986, participation results in a slight increase in standardized test performance that usually disappears soon after the supplementary instruction stops.

The literature on Chapter I has received mixed reviews. As presented in this report, it is designed to demonstrate that for each geographic region, and nationally, many of the same questions arise regarding the effectiveness of Chapter I as an intervention program over time. While the common thread between each study presented is the measurement of academic achievement based on NCE scores, there is an obvious concern regarding the inequity and inconsistency of program delivery, and the cycle of testing utilized to report student achievement gains. One of the questions raised regarding the reliability of the achievement data presented for Chapter I programs is the cycle of testing.

Figures 8 and 9 illustrate the most recent statistics on reading achievement for the 1988-89 year based on an annual and fall spring cycle. Here it can be noted that students in 44 states submitting data had an average gain of 2.8 NCE's. For this same period, 33 states submitted data on students tested on a fall-spring cycle where the average gain was 8.2 NCE's. [84]

Figures 10 and 11 illustrate reading achievement gain scores reported from 1979-1989, again in accordance with testing cycles. It is important to note that similar comparisons can be made between the annual testing NCE gain scores which appeared to be lower, and fall-spring cycle testing which appears to present higher gain scores. [85]

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[84] Illinois State Board of Education, "Statistics From the National Chapter I Assessment Report," (Springfield, Illinois: Office of Planning Research and Evaluation, 1990), F3 & F5.

[85] Ibid, F4 & F6.

FIGURE 8

Reading Achievement Results Expressed in NCEs for Chapter 1 Students Tested on an Annual Cycle -- 1988-89

Grade	Weighted Number Tested	Number of States Reporting	NCE		
			Pretest	Posttest	Gain
2	216,917	44	34.6	38.0	3.4
3	235,745	44	33.8	36.8	3.0
4	222,102	44	34.1	37.4	3.3
5	198,402	44	34.4	37.0	2.6
6	156,274	44	34.1	36.9	2.8
7	105,367	44	33.0	35.6	2.6
8	96,210	44	33.3	35.3	2.0
9	41,690	38	32.1	34.3	2.2
10	24,275	35	32.3	34.2	1.9
11	17,323	34	32.2	34.2	2.0
12	9,351	33	30.2	31.0	0.8
Grades 2-12 for the 44 states that reported data	1,323,656		33.9	36.7	2.8

FIGURE 9

Reading Achievement Results Expressed in NCEs for Chapter 1 Students Tested on a Fall-Spring Cycle -- 1988-89

Grade	Weighted Number Tested	Number of States Reporting	NCE		
			Pretest	Posttest	Gain
2	93,109	33	30.1	41.0	10.9
3	76,971	33	30.3	39.1	8.8
4	62,968	33	31.5	39.4	7.9
5	51,399	33	31.8	38.5	6.7
6	40,543	33	31.1	38.2	7.1
7	26,812	32	31.1	37.2	6.1
8	21,230	32	30.7	36.8	6.1
9	14,552	30	30.2	36.4	6.2
10	7,598	29	29.6	35.7	6.1
11	4,204	29	28.0	33.6	5.6
12	2,451	29	29.4	35.0	5.6
Grades 2-12 for the 33 states that reported data	401,937		30.7	38.9	8.2

FIGURE 10

Reading Achievement NCE Gain Scores for Chapter 1
Students Tested on an Annual Cycle -- 1979-80
to 1988-89

Grade	NCE Gain Score									
	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89
2	1.0	1.3	1.2	0.9	1.0	1.5	1.1	2.8	2.8	3.4
3	2.4	3.2	2.2	2.8	3.0	2.6	2.8	3.3	3.3	3.0
4	1.9	3.1	2.7	2.6	2.9	3.5	3.1	3.5	3.5	3.3
5	2.3	3.2	3.3	3.2	3.1	3.8	3.1	2.5	2.6	2.6
6	3.2	4.0	3.4	3.4	3.2	3.5	3.5	3.1	3.2	2.8
7	1.9	2.1	2.4	2.2	2.5	4.0	2.6	2.5	2.5	2.6
8	2.2	3.0	3.1	3.1	2.4	2.5	2.6	2.1	2.6	2.0
9	1.9	2.2	2.4	2.7	1.6	1.5	2.4	1.4	2.2	2.2
10	-0.6	1.4	0.8	1.5	1.1	1.5	1.3	1.0	1.1	1.9
11	-2.0	2.4	0.5	-0.6	0.3	1.7	1.8	1.8	1.6	2.0
12	1.5	0.3	1.7	-0.3	0.3	0.0	-0.3	1.5	0.0	0.8

FIGURE 11

Reading Achievement NCE Gain Scores for Chapter 1
Students Tested on a Fall-Spring Cycle -- 1979-80
to 1988-89

Grade	NCE Gain Score									
	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89
2	9.4	8.9	8.5	9.6	9.9	9.3	9.8	9.5	10.1	10.9
3	7.4	7.1	6.7	7.7	8.2	7.9	8.2	8.0	8.3	8.8
4	7.0	6.9	6.3	6.9	7.5	7.3	7.6	7.2	7.1	7.9
5	6.1	6.2	6.3	6.2	6.7	6.5	6.6	6.3	6.3	6.7
6	6.0	5.8	5.7	5.9	6.3	6.2	6.6	6.5	6.2	7.1
7	5.5	4.7	4.8	5.1	5.6	5.5	5.8	5.6	5.7	6.1
8	5.0	4.4	4.6	4.8	5.1	5.2	5.7	5.1	5.3	6.1
9	5.2	5.1	4.5	5.0	5.3	4.9	4.6	4.5	5.3	6.2
10	4.2	4.6	4.0	4.3	4.5	3.9	4.2	4.4	4.8	6.1
11	3.2	4.1	3.6	3.2	4.1	3.3	3.9	4.4	5.2	5.6
12	4.4	4.4	4.8	2.4	4.6	3.8	3.5	4.3	4.6	5.6

The research examined by the individual state studies tended to focus on programmatic issues rather than address the issue of reading intervention in any format. They appear to combine or confuse program evaluation with process which may contribute to findings that could not be resolved or were inconclusive.

The Chapter I Interim Evaluation Report, issued by the Office of Educational Research, was the only study reviewed that attempted to address Chapter I as an intervention process. This may be due in part to the nature of the information provided from the various states who reported their data, the fact that individual program characteristics were examined on a very limited basis, and the fact that the quality of the programs was not a component of the study.

The issues connected with Chapter I parallel the questions investigated in this project. The supplemental nature of Chapter I programs and the gains reported support the idea that the more opportunities students have to learn, the more they actually learn. Chapter I programs have been designated to provide this support. Although other issues arise regarding its impact over time, the research reviewed clearly indicates that in some way it has impacted student learning.

Sustained Effects On Student Achievement

In addition to the Chapter I project evaluations, which include some sustained effects data and a directed sustaining effects study like this project, several other studies report on the impact of reading intervention on student achievement over time.

Stanton Plattor (1968) initiated a study to determine whether or nor a significant change in students' academic potential (as measured by a standardized group test of intelligence) could be made as a result of intervention for disadvantaged students. The project was conducted in two New Orleans school districts. Minority (Black) students were identified for study based on the following behaviors and characteristics:

1) depressed learning potential, 2) low readiness levels 3) inadequate reading skills, and 4) poor in-school achievement.

Non-cognitive data was collected on teacher variables, and cognitive data on student variables. The long form of the California Test of Mental Maturity was administered to approximately 2,200 students in the fall of 1966, prior to the intervention program. Interim post-tests were given in the spring of 1967 and post-tests were given annually in grades one, three, and five.

The results indicated that all gains between the pre-tests and post-tests were statistically significant at the .001 level, except the grade five non-language gain, which was significant at the .05 level. Language gains were higher in all cases than non-language gains. The findings indicated that IQ scores and an index of academic potential can be improved significantly when general learning environments are coupled with instructional intervention.[86]

Harckham (1971) conducted a four year investigation to predict reading achievement at grade four from kindergarten measures. The Metropolitan Readiness Test (MRT) appeared to be the best predictor of reading success at third grade with a

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[86] Stanton Plattor, "Preliminary Findings From a Longitudinal Educational Project Being Conducted for Instructionally Impoverished Pupils in Intact Schools in the Urban South,"(New Orleans, Louisiana, Southern Association of Colleges and Schools, February 1968).

correlation of .74 between the MRT and reading. The results indicated that the reading level of these students was substantially improved using a model of reading intervention during their kindergarten year. [87]

A fifteen year Direct Instruction Follow Through study was conducted by Linda Meyer (1983). This project of enhanced instruction, implemented in 180 communities nation-wide , was designed for children in kindergarten through third grade in schools serving disadvantaged students. To determine the long term effect of this intervention, the study compared the performance of the first three cohorts of Follow Through students from Bainbridge School in Brooklyn, New York with that of a cohort group of non-Follow Through students from the same area.[88]

Data was collected from approximately 82 percent of the Follow Through students and 76 percent of the control group students. The data gathered included high school graduation rates, ninth grade reading and math scores, and students' application and acceptance to colleges.

The results of the data analysis indicated that: 1) more than half of the Follow Through students finished high school, as compared to approximately a third of the control group students, 2) Follow Through students dropout percentages were significantly less than those in two of the three control groups, 3) more Follow Through program applicants applied for and were accepted by colleges, 4) ninth grade

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[87] Laura D. Harckham and Others, "Longitudinal Effects of I.T.A. on Pupil's Reading Achievement in Grades One Through Four Using Kindergarten Measures," Reading Research Quarterly, ED 045327, February 1971

[88] Linda Meyer, "Long Term Academic Affect of Direct Instruction Follow Through Technical Report Number 299," (Washington, D.C.: National Institute of Education, November 1983).

performance was significantly better for Follow Through students when compared with their control group counter parts.[89]

The Follow Through study was one of the few projects that examined sustained effects based on early intervention through high school.

Thomas Nagel (1986) conducted a research project to document the success of the Achievement Goals Program (AGP) in raising student achievement in the San Diego Unified School District's minority-isolated schools.

Results on the Comprehensive Test of Basic Skills (CTBS) for fifth graders from 1975-1985 were reviewed. Mean percentiles for total reading, total language, and total math were determined for each school, transformed into scale scores, and used to calculate weighted means. Time series designs using unit replications were used to determine the effect of the AGP intervention. California Assessment Program data from the district's Pupil Ethnic Census Reports were assembled to address the issue of a "history effect" in the time series design. School effectiveness factors were compared to the AGP instructional model.

The results of the study indicate that the mean percentile for CTBS - form S total reading scores for fifth grade students remained relatively constant from 1975 to 1980 and then experienced a sharp rise of approximately 10 percentile points when AGP was implemented in the fall of 1980. From 1980 to 1985 an overall increase of 25 percentile points was achieved. At the same time, there was a continual rise over the decade in district reading scores of 8 percentile points.[90] The study also reported

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[89] Ibid, 9.

[90] Thomas Nagel, "A Longitudinal Study of Systematic Efforts to Raise Standardized Achievement Test Scores Using Factors from School Effectiveness Research," Paper presented at the American Research Association Annual Meeting, Washington, D.C., April 1986.

findings relative to math improvements and minority student participation which are not included in this review.

A unique study was presented by Christy Foley (1987) which reviewed the "Starter Approach" for nonreaders. The study described the techniques and methodologies of this approach and then reported the results of four longitudinal projects completed with individual subjects for which the "Starter Program" served as the intervention. The following are descriptions of two of the studies:

The subject was a special education fourth grade student who was frustrated at the pre-primer level and knew very few sight words. At the conclusion of a year of two weekly one hour sessions, the student scored at the third grade instructional level on the oral reading passage of the Ekwall Reading Inventory, and at the fourth grade on the independent reading level of the same inventory. The subject could also correctly identify 95 percent of the sight words of the Ekwall Basic Sight Word List and scored at the fourth grade instructional level on the San Diego Quick Assessment List. Follow up on the student's progress in the following year indicated that the gains held constant.[91]

The second study conducted involved twenty nine kindergarten students who were given three individualized Starter Approach sessions weekly during a ten week period. The approach was used as a supplement to the Open Court Basal Reading Program. Pre- and post-test performance for the students on subsections of the Ekwall Reading Inventory (1986) were compared to scores obtained by a second kindergarten

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[91] Christie L. Foley, "Four Longitudinal Studies of the Starter Approach: A Beginning Reader Strategy for Nonreaders, " Paper Presented at the Annual International Reading Association, Anaheim, California, May 1987.

class serving as a control group who did not receive the supplementary instruction. Both kindergarten classes were taught by the same teacher.

Results of the Ekwall Basic Sight Word List indicated that although both groups of students began with approximately equal sight word knowledge and gained in their identification of common sight words over the two-month span, the students receiving the Starter Approach of supplementary instruction demonstrated greater overall gains in sight word recognition.[92]

The Columbus Ohio Study on the sustained effects of Reading Recovery by Gay Su Pinnel, Diane DeFord, and Carol Lyons received national attention. After the initial pilot, follow-up studies were conducted for the second and third year of the program for students who were participants and/or who were previous participants who were discontinued from the program. The purpose of this information was to determine how the performance of these students from first grade compared with the performance of non-participating students on text reading ability at the end of second and third grades.

After the first year of treatment, in May 1987, both groups were assessed on text reading. The Reading Recovery students performed better than the comparison students.[93]

In May 1988, two years after the intervention year, the Reading Recovery students continued to perform better than the comparison group. These differences were even greater for the students who had successfully discontinued Reading Recovery.[94]

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[92] Ibid, 6.
[93] Gay Su Pinnell et. al., "Reading Recovery: Early Intervention for At-Risk First Graders," Educational Research Service, 1988, 1.
[94] Ibid, 2.

Another dimension of the project compared these two groups with a random sample of second grade students after one year following the intervention treatment. The proportion of students who performed at average or above average levels was calculated for Reading Recovery students and the total comparison group. The results of the average-band analysis data indicated that a substantially larger percentage of the total group of Reading Recovery students were at or above the average levels on the measure of Text Reading compared to the comparison group. Successfully discontinued students had the highest proportions of students at average or above average levels.[95]

The final question posed in the project was to determine if successfully discontinued students sustain the gains they achieved in first grade through the end of second and third grade.

To respond to this question, the mean scores on text reading levels of successfully discontinued students were examined at four points. Their progress and that of the comparison students was compared with the average band of Text Reading level achieved by random samples of all first, second, and third grade students. The results provided significant evidence that a high proportion of successfully discontinued students continued to make progress for at least two full years after the intervention treatment. At the end of first grade, discontinued students, as a group, scored within the average band of all first grade students in Random Sample. At the end of second and third grade, the mean Text Reading level of discontinued students was still within the average band of all children from their grade level. The mean Text Reading level for the comparison group,

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[95] Ibid, 35.

however, fell below the average band at each grade level. [96] Thus, the Reading Recovery intervention did improve students' reading achievement over at least two years. [97]

One of the most impressive longitudinal studies beyond Reading Recovery is one that was completed by the National Assessment of Educational Progress (NAEP), presented in 1987. Considered the "Nation's Report Card" NAEP is an ongoing, congressionally mandated project which was established in 1969 to obtain comprehensive and dependable data on the educational achievement of American students."[98] NAEP reports are inclusive of public and private school participants. The project conducts annual assessments on the progress of nine, thirteen, and seventeen year old students. NAEP is the only regularly conducted educational survey at the elementary, middle, and high school level.

NAEP has been responsible for assessing and evaluating students' proficiencies in reading and writing, as well as the other major academic subjects (fine arts, computer competence, and career and occupational development). The NAEP assessment process is broad based and involves panels of experts who develop objectives, proposing goals that they feel students should achieve.

The 1988 Reading Trend Assessment completed by NAEP summarized trends in reading performance of American students based on five national reading assessments conducted at the end of the school year in 1971, 1975, 1980,1984, and 1988.

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[96] Ibid, 36.
[97] Ibid, 53.
[98] National Assessment of Educational Progress, The Reading Report Card. Progress Towards Excellence in Our Schools: Trends in Reading Over Four National Assessments, 1971-1984, Report No. 15-R-01, (Princeton, New Jersey: Educational Testing Service, 1985) , 13.

Six booklets were administered in the 1988 reading trend assessment, each containing a different combination of reading and writing tasks. These booklets were identical to a subset of reading assessments used in 1984. The task asked students to read and answer questions based on a variety of materials. Most questions were multiple choice and were designed to assess students' abilities to locate specific information, make inferences, or identify the main idea.

A private research company completed the sampling and data collection process. The Educational Testing Service completed the analysis based on parameters set by NAEP. Detailed information on the levels of reading proficiency demonstrated by students across the nation were presented in the report.

Figure 12 presents the levels of reading proficiency described in the report and Figure 13 illustrates the percentage of students at or above these five levels during the course of the study. Comparisons of performance levels in 1988 with those in 1971 reflect observed gains in average performance for nine and seventeen year olds, but suggest that more improvement has occurred at the lower levels of the scale than at the higher levels.[99]

Of interest in this report relative to the current study is its assessment of a national sampling of all students in the age appropriate populations irrespective of their socioeconomic status.

The sustained and longitudinal effects of reading intervention on student achievement should serve as a directional signal for the educational community. If student progress is not continually monitored and progress documented, we have few

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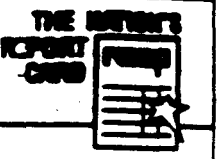
[99] Ibid, 23 & 24.

FIGURE 12

FIGURE 2.1 | Levels of Reading Proficiency



Rudimentary (150)

Readers who have acquired rudimentary reading skills and strategies can follow brief written directions. They can also select words, phrases, or sentences to describe a simple picture and can interpret simple written clues to identify a common object. *Performance at this level suggests the ability to carry out simple, discrete reading tasks.*

Basic (200)

Readers who have learned basic comprehension skills and strategies can locate and identify facts from simple informational paragraphs, stories, and news articles. In addition, they can combine ideas and make inferences based on short, uncomplicated passages. *Performance at this level suggests the ability to understand specific or sequentially related information.*

Intermediate (250)

Readers with the ability to use intermediate skills and strategies can search for, locate, and organize the information they find in relatively lengthy passages and can recognize paraphrases of what they have read. They can also make inferences and reach generalizations about main ideas and author's purpose from passages dealing with literature, science, and social studies. *Performance at this level suggests the ability to search for specific information, interrelate ideas, and make generalizations.*

Adept (300)

Readers with adept reading comprehension skills and strategies can understand complicated literary and informational passages, including material about topics they study at school. They can also analyze and integrate less familiar material and provide reactions to and explanations of the text as a whole. *Performance at this level suggests the ability to find, understand, summarize, and explain relatively complicated information.*

Advanced (350)

Readers who use advanced reading skills and strategies can extend and restructure the ideas presented in specialized and complex texts. Examples include scientific materials, literary essays, historical documents, and materials similar to those found in professional and technical working environments. They are also able to understand the links between ideas even when those links are not explicitly stated and to make appropriate generalizations even when the texts lack clear introductions or explanations. *Performance at this level suggests the ability to synthesize and learn from specialized reading materials.*

FIGURE 13

Percentage of Students at or Above the Five Levels of Reading Proficiency, 1971 to 1988*

THE NATION'S REPORT CARD

Reading Skills and Strategies	Age	1971	1975	1980	1984	1988
Rudimentary (Level 150)	9	90.5*	93.2	94.6	92.5	93.0
	13	99.8	99.7	99.9	99.8	99.8
	17	99.6	99.7	99.8	100.0	100.0
Basic (Level 200)	9	58.2*	62.2	67.6*	61.9	62.5
	13	92.8*	93.3*	94.9	94.1	95.1
	17	95.9	96.4	97.2	98.3	98.9
Intermediate (Level 250)	9	15.3	14.6	17.2	17.0	17.0
	13	57.9	58.6	60.9	59.1	58.0
	17	78.5*	80.4*	81.0*	83.1*	86.2
Adept (Level 300)	9	1.0	0.5	0.6	1.0	1.2
	13	9.8	10.3	11.3	10.9	10.6
	17	39.2	39.1	38.5	40.0	41.6
Advanced (Level 350)	9	0.0	0.0	0.0	0.0	0.0
	13	0.1	0.2	0.2	0.2	0.2
	17	6.6*	6.1*	5.3	5.5	4.8

*Shows statistically significant difference from 1988, where $a = .05$ per set of four comparisons (each year compared with 1988). No significance test is reported when the percentage of students is >95 or <5.

opportunities to substantiate that the intervention strategies that are put in place are working. If these strategies are ineffective over time we owe it to the students in our charge to make adjustments and modifications that will improve their chances for success.

It is heartening to note that projects such as the "National Report Card" support the claims that students are making slow but steady gains in reading. However, it is equally disheartening to see that the levels of proficiency are not as they should be over time.

Student Attitudes And Reading Achievement

The current project is also concerned with students' attitudes about reading. When examining the issue of whether a student is able to read, one must consider the question of whether a student will read. Thomas Estes, in an article entitled "A Scale to Measure Attitudes Toward Reading," presents the point of view that "how a student feels about reading is as important as whether they are able to read, for as is true of most abilities, the value of reading lies in its use rather than its possession.[100]

Educators and theorist alike have linked student attitudes with achievement. According to Lewis R. Aiken, the scientific study of attitudes began in the 1920s with the work of Bogardus (1925) and Thurstone and Clave (1929).[101] Although the

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[100]Thomas Estes, "A Scale to Measure Attitudes Toward Reading," Journal of Reading, November 1991: 138.

[101] L.L. Thursto, and E. J. Chave, "T he Measurement of Attitude," (Chicago: The University of Chicago Press, 1929).

definition of attitude seems never to be clearly agreed upon, Guttman, Stouffer, and others (1950) characterized attitude as "a delimited totality of behavior with respect to something."[102] Gagne and Briggs (1974) described attitude as "an internal state which affects an individual's choice of action toward some object, person, or event."[103] Rokeach (1968) perceived attitude as "a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner."[104] Good (1973) defined attitude as "the predisposition or tendency to react specifically towards an object, situation or value; usually accompanied by feelings and emotions, attitudes can not be directly observed but must be inferred form overt behavior, both verbal and nonverbal."[105]

Aikens, in combining the common elements of each of these definitions, suggests that "attitudes may be conceptualized as learned predispositions to respond positively or negatively to certain objects, situations institutions, concepts, or persons."[106] As such, he states that "attitudes possess cognitive (beliefs or knowledge), affective (emotional, motivational), and performance (behavior or action tendencies) components."[107] In viewing this approach, attitude is not distinct from other psycho-social terms such as interest, value and opinion, although there are differences in the way in which these concepts are used.

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[102] S.A. Stouffer et. al., "Measurement and Prediction," Studies in Social Psychology in World War I, 1950, Vol. 4, (Princeton, New Jersey: Princeton University Press).

[103] R.M. Gagne and L. J. Briggs, Principles of Instructional Design, (Holt, Rinehart, and Winston) 1974.

[104] RoKeach, M., Beliefs, Attitudes and Values: A Theory of Organization and Change, (San Francisco: Jossey-Bass, 1968).

[105] Carter V. Good, , ed. Dictionary of Education, New York: McGraw-Hill Book Company, 1973).

[106] Lewis Aiken, "Attitude Measurement and Research," New Directions for Testing and Measurement, No. 7, 1980: 1-12.

[107] Ibid, 7.

In a number of studies, attitudes may be considered more basic than opinions. According to Regina Tullock-Rhody, and J. Estelle Alexander, "the way students feel about reading is closely involved with their reading achievement..." [108] In searching for an instrument that would assess student attitudes, they determined that structured teacher observation of relevant behaviors over time would be the most effective method of assessing student attitude. They recognized, however, that time constraints and teacher objectivity were limitations of this process.

In acknowledgment of this theory, Tullock-Rhody and Alexander developed a project designed to create and validate an instrument that would yield a true measure of secondary students attitudes towards reading.

In the literature review of their project, they agreed with Betty Heathington's (1975) suggestions which proposed that one of the requirements for an adequate paper and pencil assessment of attitudes is that items should be truly representative of students' feelings toward reading. They felt that while the interview technique provided greater richness and spontaneity from respondents, they could find no instruments for measuring student attitudes based on Heathington's ideal of a successful reading attitude instrument.[109]

After developing a scale, selecting the type of instrument desired, and designing a prototype, the Tullock-Rhody-Alexander reading attitude assessment instrument was piloted. The first phase of the project consisted of interviews with seventy-four boys and sixty-eight girls. Twenty-two percent of the students were black and 78 percent were

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[108] Regina Tullock-Rhody and J. Estelle Alexander, "A Scale for Assessing Attitudes toward Reading in Secondary Schools," Journal of Reading, April 1980: 609-614.

[109] Ibid.

white. During the interviews, students were asked to describe the comments and behaviors of three people they knew who like to read and then describe the same for people they knew who did not like to read. Students were also asked to describe a place they felt was conducive to reading. The interview format enabled students to talk spontaneously and freely and also to rethink their answers.

From a synthesis of individual responses, the investigators identified thirty-three discrete statements, to be randomly ordered, that would be utilized on a pilot scale.

The final phase of the pilot involved administering the tryout scale to 204 students in grades seven through twelve. An analysis was performed to determine if all the items were discriminating between respondents with positive attitudes and those with negative attitudes. Of the thirty-three items on the pilot scale, twenty-five correlated highly enough to be retained on the final scale.

To provide data for validity and reliability, the revised instrument was administered to 349 students in two urban and two rural school districts in eastern Tennessee. In addition, twelve teachers were each asked to designate five of their students who they felt had the most positive attitudes towards reading and five of their students who they felt had the most negative attitudes towards reading.

The results indicated that the scale did discriminate between students perceived as having positive attitudes and those perceived as having negative attitudes. Individual items retained on the final scale correlated with an acceptable level with the total scale.

Larry Kennedy and Ronald Halinski, were also interested in students attitudes toward reading. They believed that "for the classroom teacher, a positive attitude toward

reading on the part of the student must be present before the goal of making students lifetime readers can be realized."[110]

Kennedy and Halinski conducted a two year study in the area of measuring students' attitudes towards reading. During the first phase of the study an instrument was developed to elicit the actual thoughts and vocabulary of secondary school students. Students were asked to respond in writing to a number of generalized, open-ended statements. The responses to these statements were then used to develop an original ninety item instrument, using a four point Likert scale. It was administered to approximately 500 secondary level students.

On the basis of a factor analysis data and test item correlations, a revised instrument was completed. The final phase of the study was to utilize this instrument with 977 additional students in a midwestern secondary school.

In order to determine the validity and reliability of the instrument, standardized procedures were used to administer the instrument to students in their English classes. Students were grouped into sections who signed their names, versus those whose surveys were completed anonymously. Students indicated their sex, last letter grade in English, grade level, and academic track (accelerated, regular, and remedial). In addition, in each of the sections with signed surveys, teachers were asked to indicate three students with the most positive attitude toward reading and three students they considered having the least positive attitudes.

Internal consistency and reliability were computed using an analysis of variance statistical procedure. The results indicated that: 1) anonymity did not have a

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[110] Larry Kennedy and Ronald Halinski, "Measuring Attitudes: An Extra Dimension," Journal of Reading, April 1975: 518-522.

significant affect on scores; 2) females scored significantly higher on the instrument, an indication of a more positive attitude toward reading; 3) the higher the student's English letter grade, the higher the attitude score; and 4) the higher the student track placement, the higher the attitude score.

Kennedy and Halinski concluded that the measurement of student attitude toward reading can provide significant information that may effect the development of lifetime reading habits which may also be a variable in student achievement. [111]

Russ Mark (1989), in a study conducted in an East Los Angeles junior high school, completed a similar study relating reading attitude to reading achievement. Eighty-five seventh grade students in a predominantly Hispanic junior high school were administered the Short Form Reading Attitude survey. This survey uses an eighteen statement Likert scale measure. The survey was administered to four intact classes including one for the gifted and talented. In addition, the reading vocabulary and comprehension sections of the California Achievement Test were used to measure reading achievement.

Pearson product-moment coefficients between attitude and achievement scores were .323 for the gifted class and .07 for the other classes. The results indicated that gifted students exhibited a more positive attitude toward reading than did the regular students, although both groups had positive scores.[112]

Charlotte Showalther (1990) also conducted a study on middle school students' attitudes towards reading. Her investigation was designed to ascertain whether twelve

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[111] Mark Russ, "Relating Reading Attitude to Reading Achievement in an East Los Angeles High School," Reading Improvement, 26, Fall 1989: 208 - 214.

[112] Charlotte Showalther, "Choices: Enhancing Middle School Chapter I Student's Attitudes Toward Reading," WSRA Journal, 34, Winter 1990: 411- 413.

Chapter I middle school students' attitudes towards reading would change if they were allowed to have a voice in the selection of their reading material.

Students were administered the Heathington Reading Attitude Scale to determine their attitudes towards reading. The participating students were then allowed to select what they would read during the Chapter I reading time and for homework. Over time, students read more tradebooks and plays. Scores on the final attitude scales increased, indicating that students felt more positive toward reading at the conclusion of the study.

Using an interview technique, Robert Hillerich conducted a study on the perceptions of reading and writing in first grade students. A series of seven questions were used to interview sixty-six first grade students. Five of the questions dealt with understanding the reading process. Knowing words was cited by 46 percent of the students as the criterion for their perception of reading success. When asked if they liked to read, 91 percent replied in the affirmative and 62 percent said because it was "fun."

The impact of opportunities for sustained silent reading on reading attitudes of first grade students was conducted by Virginia Reusing. Her study was designed to collect data on the relation between sustained silent reading (SSR) and reading attitudes and interests.

The study was conducted with twenty-three first graders who participated in an SSR program. A reading attitude and interest survey was designed and administered individually to the students prior to the program and again after seven weeks. The survey consisted of five questions with responses marked on a 3 point scale.

The results indicated that a statistically significant increase in positive attitudes toward reading was found for four of the five questions. Prior to the SSR program, no student gave reading as a leisure interest. After the program, 70 percent (16) of the students mentioned it.

Many indicators suggest that how students feel about reading can impact reading achievement. The literature reviewed on this topic was selected to provide a limited amount of "grounded theory" regarding the nature of attitude as a behavior and attempts to measure attitudes on reading and its possible impact on student achievement. These issues are directly related to this project in that student attitudes will be measured and correlated relative to student achievement and student success.

It is interesting to note that in two projects designed to develop reading attitude instruments, the dimension of teacher perception was included in the validation process. Although there is a limited body of literature on the relationship of teacher perceptions and expectations to student attitudes, it has not been included as a component of this study project.

CHAPTER 3

PROCEDURES AND METHODOLOGY

Introduction

In order to determine the sustained effects of reading intervention on a sample population of African American students over time, this descriptive longitudinal project required both the complete cooperation of the school districts who service the students and the students themselves. Section I of this chapter will describe the sample population relative to demographics, the specific characteristics of the students, and the nature of the intervention. Section II will present the method and types of data collection to be completed. In section III and IV, respectively, the quantitative and qualitative statistical treatment of the data will be discussed relative to the purpose of the project, which is to determine if early intervention in reading has:

(a) impacted students' achievement in reading

(b) affected the academic success of students in the sample

(c) influenced students' attitudes about reading

The Population

The sample student population for the project was selected from the suburban community of Evanston, Illinois. Evanston is located north of Chicago and is bordered by the lake on the east and a number of sister suburban communities to the north and west. Evanston contains a very ethnically diverse population of approximately 82,000 residents with socioeconomic ranges encompassing subsidized housing to multi-million dollar homes. Because of this diversity it is often described as an urban/suburban community. In addition to having two major universities and one college within its boundaries Evanston takes particular pride in its educational program and supports its dual school system through its local tax base which comprises approximately 87 percent of the school budget.

The elementary school District #65 is comprised of eleven kindergarten through grade five buildings, three middle schools for grades six through eight, one experimental laboratory school for grades kindergarten through eight, one special education site for the profoundly physically disabled, one residential facility for children placed by the State of Illinois orphanage act, and one site which serves as the central location for pre-school programs. During the 1982-83 school year, the student population was approximately 6,100 students with a racial make up of 55 percent non-minority and 45 percent minority, with African American students comprising the major portion of the minority student population. The 1991-92 statistics are similar, with a total school population of

approximately 6,400 students comprised an ethnic make up of 48 percent non-minority and 52 percent minority representation.

The high school District #202 consists of a single location for grades nine through twelve. The Evanston Township High School is the feeder school for District 65. Its 1992 statistics indicate that there were approximately 3,000 students in attendance with a similar racial make-up as described for the elementary district. The high school has a national reputation for its outstanding educational programs.

The sample population of the project is comprised of thirty-nine African American students who were enrolled in District 65 as first graders during the 1983-1984 school term and identified as "at risk" for academic failure in reading. Based on scores of stanine three or below on the 1979 edition of the California Achievement Test (CAT) which was administered in the spring of their Kindergarten year (1981-82), these students were participants in the reading intervention program Intensive Reading (IR). The students remained in the Evanston school systems through the 1991-92 school term and represent 50 percent of the total number of students (78) who received the intervention as first graders in 1983.

The Intensive Reading program was initiated after a pilot project in January 1982 in an attempt to provide support for and to supplement the acquisition of reading skills for identified students in grades one through five. Since only 50 percent of the K-5 students qualified for Chapter I services based on the socioeconomic formula, the program was initiated at the district's expense to provide the intervention on a district-wide basis. Thus, economic disadvantage was not included in the criteria for student participation. Students

who were Chapter I eligible, continued to receive additional support and IR served as their primary reading program.

The parameters of the program were designed based on a year long study conducted by teachers who reviewed the strategies that had proved most effective in accelerating reading skills for "reluctant readers." The goal of the program was to accelerate student achievement utilizing the following format:

1. Program entrance criteria consisted of students scoring in stanines 1-3 of the CAT (1979 edition) administered the previous spring (81). Additionally there were seven students in the sample population whose stanines were 4 or 5 but who were re-tested based on teacher observation. The re-test scores fell in the stanine 3 category; however, they were not recorded in the districts records.
2. Identified students would receive a minimum of ninety minutes of direct reading instruction in a specialized setting. (This represented approximately thirty additional minutes of reading time, exclusive of language arts activities).
3. Students in the program would be grouped together in primary grade groupings (grades one and two) or intermediate grade groupings (grades three, four, and five) with a maximum pupil:teacher ratio of 15:1.
4. A specialized staff committed to the improvement of reading skills would be utilized for instruction. (This staff was comprised of classroom teachers, reading specialists, or additional teachers hired for the program. A staff development component was included in the process).
5. There would be direct individualized diagnosis, prescriptions, and monitoring of the students by local school reading specialists. The district's criterion reference testing program would be utilized to monitor student's instructional progress and would serve as one of the reporting mechanisms to convey student achievement
6. A parent component would be designed by local schools to provide information and a direct relationship with the students' home.
7. There would be direct central office monitoring of this program by the reading curriculum specialist and Director of Curriculum.
8. Interim and annual status reports of the program and student achievement would be reported to the Superintendent and the Board of Education.
9. Students who scored at stanines 4 or above on the CAT administered during the spring would have successfully completed and exit the program.
10. The program would be assessed annually and modified as needed.
11. Students would remain in the program until the exit criteria was successfully met.
12. The program did not extend into the middle schools.
13. Participation was independent of any additional support activities students might be eligible for (i.e., Chapter I, Speech Language, Learning Disabilities Resources etc.).

Curriculum activities were to focus on oral language, vocabulary development, skill building, and independent silent reading. The Wisconsin Design Criterion Reference Test was used to monitor student progress, as well as establish objectives in the prescriptive component of the student's individualized plan.

Although the intervention was developed for students in grades one through five, this project focuses on the first grade students in the process of early intervention.

Data Collection

The cooperation of both District 65 and 202 was obtained by the researcher and research protocols were developed and agreed to by all three parties. The districts agreed to provide access to student records, individual students, and staff. Informed consent was obtained from the parents of participating students and student confidentiality was assured.

Data collection consisted of four processes: 1) extrapolation of data from students' cumulative written records, 2) review and compilation of student test data from district computerized and written records, 3) written surveys completed by both teachers and students, and 4) taped interviews with a representative sample of students from the study population.

Cumulative Records

The researcher reviewed the cumulative record folders of each student which are on file in the students' attendance school. Students were assigned a separate identification number for the purpose of collecting data and maintenance of confidentiality. The original enrollment application, which is completed by the student's parent or guardian at the time the student is initially enrolled in school, was reviewed to obtain and record the following data relative to the student's home/personal status, academic success record, and recorded support services. The data collected included:

a. student identification number

b. birth date

c. gender

d. parent's marital status

c. parties with whom the child lived

d. number of siblings

e. position of siblings (older/younger)

f. occupation of parent(s)/guardian(s)

g. number of years of pre-school experience

h. elementary school(s) attended in the district

i. middle school(s) attended in the district

j. end of year academic grade in reading from K-9th grade

k. reading teacher for each year

l. recorded support services (i.e., Speech, Learning Disabilities, Social Work, etc.)

In instances when data was not recorded in or on the cumulative folder it was entered as missing in the data list.

Computerized and Written Records

District computerized records were examined to record students annual test data, including percentile, stanine, raw, and scale scores on the annually administered California Achievement Test for grades K-8, the Degrees of Reading Power reading test administered for ninth grade placement in the high school's reading program, current course placement, and current academic grades for reading.

California Achievement Test data was machine scored within the district and compiled as district records. Scores were listed by testing year and grade level then arranged by school in an alpha student listing. The records included district cumulative and individual data for both national and local norms on the complete test battery including sub-tests and composite scores. Percentile ranks, scale scores, stanines, and raw scores were presented for each student for each test. For the purposes of this project, total reading scores were recorded for the four types of scoring. Normal Curve Equivalent scores (NCE's) have many of the characteristics of percentile ranks with the

additional advantage of being based on an equal-interval scale. However, these scores were not provided as a component of the district analysis and therefore were not included in the data collection.

Validity and reliability information relative to the California Achievement Test was obtained by a review of the California Technical Reports for forms C/D[113] and E/F published by CTB/McGraw Hill. [114] The reports describe the tests as norm-referenced, objectives based tests for kindergarten through grade twelve which are designed to measure achievement in the basic skills found in both state and district curricula. Forms C/D were utilized for the 1979 edition of the tests and Forms E/F for the 1985 edition. Relative to the reading test battery, the differences between the two test forms were documented in the report as an increased number of items for the upper ranges of distribution in order to minimize test "ceiling" effects. Although the scope of the reading tests were broadened the intent is a continued measure of a student's understanding of broad concepts as developed by all curricula rather than an understanding of content specifics to any particular program.

Tryout data was selected in October and January two years prior to the development of the final tests. Tryout samples included students from public and private schools across the country and representative of ethnic, racial and socioeconomic groups. An overall quality index was produced as a function of the discrimination rating, common

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[113] "California Achievement Tests Form C and D Technical Report," (Monterey, Calfironia: Mcgraw Hill, 1981).

[114] "California Achievement Tests Form C and D Technical Report," (Monterey, California: McGraw Hill, 1981).

error rating, fit rating, ethnic bias rating, and sex bias rating. Additional tables for matched cases, regression analysis, and cross validations were included in the reports.

Reliability of the tests were described in the report by several kinds of data, including internal consistency, standard error of measurement, standard error curves, re-test and alternate form administration, and an interlevel articulation study. Tables for the test-retest reliabilities and alternate form reliabilities were also included in the report.

The Degrees of Reading Power (DRP) is the standardized reading test the high school utilized to determine if students needed additional work in reading. The test was administered in the fall to all freshmen. The test is designed to assess student ability to comprehend prose. According to the test manual[115], the results are to describe what the student can do, without reference to what other students of the same age or grade can do. The design was intentionally developed to be interpreted in a criterion referenced manner, rather than in a norm-referenced fashion; however, the results are presented in a "normed" DRP scale.

The DRP scores, when interpreted in norm-referenced terms, provide scores at the Independent (P=.90), Instructional (P=.75), and Frustration (P=.50) comprehension levels for all test forms. Conversions from DRP raw scores to percentile ranks, stanines, and Normal Curve Equivalents (NCE's) are provided in the test manual.

Using the test-retest methodology, reliability and validity information were provided in the test manual through tables and graphs describing the norming process and norm data.

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[115] "Degrees of Reading Power," (Touchstone Applied Science Associates, 1988).

For the purpose of this project, the high school test coordinator advised the researcher that scores reported on the DRP are based on the student's instructional level (P=.75). Only pre-test data was collected for students in the sample population. This pre-test information was also utilized to determine student placement in a below level English track where students received one or more semesters of reading instruction.

Data on current course placement and academic grades in reading or English for the end of the school year were generated by the high school's computer management program for sample population students in the ninth grade. Course placement was not relevant for sample population students who had been retained and were completing the eighth grade. Academic grades for these students were obtained by reviewing and recording data taken directly from school report cards placed in the cumulative record files.

District 65's written records, available in the Department of Special Services and Curriculum Office, were reviewed to determine if and when the student received any of the following support services that may not have been indicted in the cumulative records:

a. Chapter I service

b. Speech

d. Learning Disabilities

e. Social Work

f. Psychological Screening

g. Summer School

The records were examined only to determine if services were provided and did not delineate the quality or duration of these services which may be considered extraneous variables.

Survey Data

In concert with district staff, students and current teachers were administered the attitudinal surveys found in Appendix A and B.

Three attitudinal surveys were considered for student assessment. A Literacy Survey is administered annually by the State of Illinois as a component of the Illinois Goal Assessment Program (IGAP) Reading Test for students in grades 3, 6, 8, and 11. This four item component attempts to assess students' attitudes toward reading using a four point scale ranging from "Never or Almost Never" to "Every Day or Almost Every Day."[116] Permission to utilize the survey was denied with the rationale that the instrument was designed to provide information regarding group rather than individual attitudes.

The second instrument considered was an unpublished 70 item attitude survey developed by Larry Kennedy and Ronald Halinski as a component of a two year study designed to measure secondary students' attitudes towards reading. Using a four point Likert scale, responses ranged from "Strongly Agree" to "Strongly Disagree" on a series

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[116] "1991 Illinois Reading Sample: Illinois Goal Assessment Program, Grade 11," (Springfield, Illinois: Department of School Improvement Services, 1991), 16.

of questions designed to determine how students view reading as an enjoyable activity.[117] Although validity and reliability were established in the study, the number of items and the need for an individual analysis of each item proved too cumbersome for this project.

The Rhody Secondary Reading Attitude Assessment (RSRAA) was the final instrument reviewed. This instrument was developed by Regina Tullock-Rhody and J. Estelle Alexander as a scale for assessing reading attitudes in secondary schools. [118]

The initial instrument was tested with seventh through twelfth graders from six urban schools and two rural schools in eastern Tennessee. According to the researchers, the students represented a wide range of socioeconomic and ability levels. Two pilot instruments were administered prior to the establishment of reliability and validity.

Validity data for the scale was presented through three indicators. First, the statements contained on the instrument were constructed from comments made by secondary students. The scale then measures what selected secondary students think are important indicators. Secondly, twelve teachers were asked to designate a specific number of students they felt were positive in their attitudes about reading, and an equal number who seemed to be negative. The results indicated that the scale did discriminate between students teachers perceived as having positive attitudes and those perceived as having negative attitudes with t at 4.16 and $p<.001$ level of significance. Finally, individual items retained on the final scale correlated at an acceptable level with the total scale.

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[118] Regina Tullock-Rhody and Estelle J. Alexander, "A Scale for Assessing Attitudes Toward Reading in Secondary Schools," Journal of Reading, (April 1980): 609-614.

The test-retest method was utilized to establish reliability measuring temporal stability. An interval of one week between testing was the test period. The results of the analysis of data as computed by the SPSS program showed that the r obtained was 0.84 which was in keeping with the upper brackets of r values for reliability coefficients as described by Guliford and Frucher (1973).[119]

The final instrument contained twenty-five items utilizing a five point Likert scale rating from "Strongly Disagree" to "Strongly Agree." Undecided was the rating for the midpoint. The researchers included a scoring table, and a clustering of items which groups attitudinal responses in five categories: school related reading, reading in the library, reading in the home, other recreational reading, and general reading.

The Rhody Secondary Reading Attitude Assessment was selected as the most appropriate instrument due to its length, types of questions, and ability for cluster scoring. The individual surveys were coded by the researcher and administered by the classroom teacher during class time to the students in the sample population and to a randomized sample of students who are in the same reading or English class. Specific instructions were included for administering the survey which took approximately 15 minutes to complete. The process was supervised by the district coordinating staff member. A specific time-frame for the completion of the surveys was developed and district coordinating staff collected the instrument at the appointed time.

Five teacher observation instruments were considered to gather data on teacher perception of student attitudes towards reading. The Language Observation Guide for Listening/Reading/Viewing was developed as an open ended teacher observation

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[119] Ibid.

instrument by Jaap Tuinman in conjunction with the Journey's Literature series. The instrument requires responses to ten open ended prompt questions regarding the individual's attitude as observed by the teacher. The instrument was eliminated from consideration because the questions were inclusive of listening and viewing activities which were not appropriate to this project and reliability and validity information was not available.[120]

Reading Specialist Janis Bailey developed an instrument entitled "Observations About the Student as a Learner." This twenty item observation checklist uses a five point Likert scale that ranges from "Strongly Disagree" to "Strongly Agree", with "Undecided" as the midpoint. Although reliability and validity documentation was available, the items were deemed more appropriate to elementary school reading instruction versus middle or high school.[121]

A teacher observation checklist was developed as a component of the University of Maine 1987 Summer Reading/Writing Program. The instrument contains twenty-six individual items listed under three categories. A four point Likert scale is used which ranges from "Does Not Apply" to Not Noticed Yet." Reliability and validity information was not available and the items were more appropriate for elementary grade students. [122]

The Transitional Literacy Development Checklist for Observations of Student Behavior is a thirty-eight item instrument which is subdivided into four categories. Developed by Phyllis E. Brazee and a group of graduate students, this instrument

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[120] Ibid.

[121] Japp Tuinman, "Journeys Evaluation," Ginn Publishing Canada, 1992, 14.

[122] Janis Bailey and Phyllis E. Brazee, et. al., "Problem Solving Our Way to Alternative Evaluation Procedures," Language Arts, Vol. 65, (April 1988), 364-374.

provided only one category that seemed appropriate to determine students attitude and interest in reading.[123]

The final instrument examined was The Teacher Checklist for Student Attitudes and Personal Reading developed by Jerry L. Johns. The original instrument contained sixteen items and used a three point scale to rate teacher perceptions of student attitudes in a ranking of "seldom", "sometimes", or "often" as measured during three periods of time during a school year. The instrument was originally designed as a component of a student portfolio. Dr. Johns suggested adapting the instrument to record teacher observations of student attitudes. [124] The adapted instrument contains fourteen items directed at teacher observations of what and how the student responds to reading rather than discrete reading strategy tasks and uses a four point Likert scale which ranges from "Does Not Apply" to "Not Noticed Yet". Reliability and validity was established using a test-retest procedure with teachers in Orange County Florida. Specifics relative to this procedure were reported by J.K. Mathews in 1990. [125]

The Teacher Checklist For Student Attitudes and Personal Reading was selected over the other instruments examined because of it brevity and questions related to observed student behavior rather than student achievement on assignments. The instrument was completed by the reading or English teacher currently serving the sample students during the survey time-frame. The surveys have been coded to insure that the names of sample students are known only by the current reading or English teacher

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[123] Ibid.

[124] Jerry L. Johns, "Literacy Portfolios: A Primer," Illinois Reading Council Journal, Vol. 19, No. 3, 1991, 4-10.

[125] Ibid.

working with that student. The survey takes approximately five minutes to complete for each student. The surveys were collected by the coordinating district staff for analysis by the researcher.

In addition to administering two attitude surveys (student and teacher), a research assistant in the district was contracted to conduct audio taped interviews with nineteen students representing 49 percent of the sample population. The interview questions (Appendix D) were developed by Jaap Tuinman for the evaluation component of the Journeys Reading Program. The model presents ten open ended questions in a Reading Process Survey relative to the students perception and attitude about reading.[126] Four questions were related to other skill activities such a listening, writing and viewing and were eliminated from the interview questions presented to the sample students in this project. The adapted questions were reviewed with the assistant and the method of conducting the interviews was established.

Students in the sample population were grouped according to current course placement and randomly assigned numbers from the Fisher and Yates Statistical Tables for Biological, Agricultural, and Medical Research. [127] Using the random selection process advised by the table, students within each group were selected for an interview.

The interviews were conducted during the student's reading class time or study hall two months prior to the administration of the Rhody Secondary Reading Attitude Assessment surveys, in a private room separate from the class. The interviews were recorded by tape and the assistant posed each question in sequence to the participant and

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[126] Japp Tuinman, . ?

[127] William J. Asher, Educational Research and Evaluation, (Boston: Little, Brown, and Company, 1976) 340-341.

recorded each student's response. The tapes and written responses were then given to the project researcher for analysis.

Statistical Treatment

Two processes were utilized in analysis of the collected data. From a quantitative perspective, the SPSS Data Analysis System for PC's was utilized to conduct the statistical process.

Frequency distribution tables were computed to compile group profile information relative to variables such as gender, birth date configurations, birth order, school retention, elementary and middle school assignment, support services provided, and high school academic placement.

A repeated measures design was employed to analyze both group and individual achievement growth. The Multivariate Analysis was selected because an assumption was made relative to the dependent vector variable having normal distributions. The sample population remained the same; however, the achievement data differed over time.

Although achievement data was collected in the form of raw, scale, percentile rank, and stanine scores, Z scores were computed using raw scores minus the mean divided by the standard deviation in order to achieve standard scores.

Because of the vast amount of data collected and the number of variables, an Analysis of Variance (ANOVA) was conducted to compare the variance, which may be

due to error or other causes, in order to determine which variances were statistically significant.

A cross-tabulation procedure was used to develop a table that allowed the Chi square statistical procedure to be performed in comparing the distribution of gains from different groups based on categorical variables.

Canonical correlations were used to test the significance of the overall association between the multiple dependent (reading grades) and independent variable (placement) where significance was shown in other procedures.

A Pierson's Correlation Coefficient analysis was employed to determine the relationship between the early intervention treatment (including duration) and the developing and current achievement and academic status of the individuals and the collective group.

The process of triangulation enabled the researcher to review the three types of qualitative data collected to analyze and support responses relative to student attitudes about reading.

A clustering approach to the Rhody and Teacher Checklist attitude surveys was used to score and analyze the student and teacher surveys. A qualitative coding approach was used to analyze the interview responses. A Pierson's statistical procedure using the SPSS system for correlational analysis of the survey data collected was employed.

Tables, charts, and graphs of the results are utilized to illustrate the statistically significant findings of the analyses.

CHAPTER 4

PRESENTATION AND ANALYSIS OF THE DATA

Introduction

A longitudinal study of this nature generates a vast amount of data for analysis. Chapter 4 is divided into four components: a profile of the sample population based on a statistical analysis; the hypotheses which were tested; the results of the statistical procedures presented in Chapter 3 to test the hypothesis; and the results of the qualitative treatment of the attitudinal data.

In each case where statistical procedures were conducted using the SPSSPC computer program, the procedures were run twice to insure accuracy in tabulation of the data. Statistical significance was also measured at the .05 level of probability for all procedures used in testing these hypotheses.

Sample Population Group Profile

A frequency distribution procedure was conducted to gather information which profiles the students in the sample population. The small n generated for various variable configurations contributed to determining which statistical procedures would be most beneficial in testing the hypothesis statements.

Gender or the sex of the student was an initial varible to consider. Table 1. illustrates the frequency distribution of males versus females. Within the sample population, the number of male students (26) is twice the number of female students (13). Males represent 66 percent of the sample population. It was important, therefore, to determine if there was significant differences between male and female students.

Table 1. -- Frequency Distribution for Male and Female Sample Population Students

Variable	N	Frequency	Percent
Male		26	66.7
Female		13	33.3
Total	39	39	100.0

Socioeconomic status is another independent variable for which data was gathered. As illustrated in Table 2., 79.5 percent of the students in the sample population

were classified as Average to High in socioeconomic status at the time the student enrolled in kindergarten based on applications for the Federally Funded low-income Free or Reduced Lunch program. Given the small proportion of students considered in the low socioeconomic category, this variable was not tested for significance as an element of this project.

Table 2. -- Frequency Distribution for Student Socio-Economic Status

Variable	N	Frequency	Percent
Low SES	8	8	20.5
High/Avg. SES	31	31	79.5
Total	39	39	100.0

Parental marital status and who the student resided with at the time (i.e., entrance to kindergarten) defined the home environment. The distribution in the sample population as illustrated in Table 3A. indicates that 30 percent of the parents of students in the sample were married while 70 percent of the parents were single or no longer married. However, Table 3B. further illustrates that in spite of the low percentage of married parents 44 percent of the students resided in households with both parents, and/or parents and stepparents. The results of this distribution suggest that testing for signifiant differences in the home residence configuration should be considered.

Table 3A. -- Frequency Distribution of Marital Status of the Students' Parents

Variable	N	Frequency	Percent
Married	12	12	30.8
Single	8	8	20.5
Separated	7	7	17.9
Divorced	9	9	23.1
Widowed	3	3	7.7
Total	39	39	100.0

Table 3B. -- Frequency Distribution of Who the Student Resided With

Variable	N	Frequncy	Percent
Both Parents	11	11	28.2
Parent & Stepparent	5	5	12.2
Parent & Other	1	1	2.6
Mother Only	20	20	51.3
Guardian	2	2	5.1
Total	39	39	100.0

Student preschool attendance is an additional independent variable for consideration. Table 4A. illustrates the frequency distribution of sample students who attended preschool and Table 4B. illustrates a distribution of the number of years in attendance. In summary, 87 percent of the sample students attended a preschool prior to kindergarten enrollment and of that number 91 percent attended for at least one year.

Therefore, the issue of preschool experience was eliminated as a variable for further statistical analysis.

Table 4A. -- Frequency Distribution of Students Preschool Attendance

Variable	N	Frequency	Percent
Attended	34	34	87.2
Not Attended	5	5	12.2
Total	39	39	100.0

Table 4B. -- Frequency Distribution of the Number of Years of Preschool Attendance

Variable	N	Frequency	Percent
1 Year	31	31	91.2
2 Years	3	3	8.8
Total	34	34	100.0

The students' chronological maturity level, or birth date upon entrance to kindergarten, was an independent variable considered. A frequency distribution Table 5. highlights the fact that 64 percent of the students entering kindergarten were chronologically more mature. These students range from 5.4 months (those born in January) to 5.10 months (those born in August of the previous year). This is an important

variable to consider since school codes at this time allowed entrance in to kindergarten for those who reached the age of 5.0 prior to December 31st of that school year. The new regulations implemented in 1988 stipulate that students much reach age 5.0 by September 1 of the school year.

Table 5. -- Frequency Distribution of Students' Birth Maturity

Variable	N	Frequency	Percent
Jan. 1976 - Aug. 1977	14	14	64.1
Sept. 1977	25	12	35.9
Total	39	39	100.0

The birth order of the student was also selected as a variable. Data was collected relative to whether the student was an only child, the oldest, youngest, or middle child at the time of enrollment in kindergarten. Table 6. illustrates that only 10 percent of the students were only children. The remaining students represent 30.8 percent who were the oldest child, 38.5 percent who were the middle child, and 20.5 percent who were the youngest child. The birth order of students who has siblings was tested for significant differences relative to academic achievement in light of commonly held sociological views about the impact of birth order on student success.

Table 6. -- Frequency Distribution of Students' Sibling Order

Variable	N	Frequency	Percent
Only Child	4	4	10.3
Oldest Child	12	12	30.8
Middle Child	15	15	38.5
Youngest Child	8	8	20.5
Total	39	39	100.0

Data relative to the elementary and middle schools attended by the sample students was collected. However, the distribution yielded a small n across nine elementary schools and relatively even numbers across three middle schools. An interesting outcome of the distribution was the delineation of students who remained in one elementary school from grades kindergarten through grade five versus students who attended two different schools during their elementary years. The frequency distribution for school attendance and school type (one versus two elementary schools) can be found in Table 7A. and 7B., respectively. For many educators, consistency in school programming is perceived as a factor for student success; therefore, this variable was tested to determine if there was a statistically significant difference between sample students who attended a single school compared to students who attended two schools.

Each school district program provides a number of support services designed to assist identified students. Those services typically include:

1. Chapter I support usually in the form of additional reading or mathematics instruction provided in a smaller group setting with a remediation approach.
2. Speech and language instruction to correct or modify speech deficiencies such as tongue thrust, stutter, etc.
3. Learning disabilities resources for students who have demonstrated specific learning handicaps such as underdeveloped small motor coordination or visual letter reversals.

Table 7A. -- Frequency Distribution of Students in Nine Elemetary Schools

Variable	N	Frequency	Percent
Dawes	4	4	10.3
Dewey	3	3	7.7
Lincoln	5	5	12.8
Lincolnwood	5	5	12.8
Oakton	1	1	2.6
Orrington	4	4	10.3
Walker	2	2	5.1
Washington	2	2	5.1
Willard	2	2	5.1
Willard & Dawes	1	1	2.6
Willard & Oakton	2	2	5.1
Lincolnwood & Orrington	1	1	2.6
Oakton & Dawes	1	1	2.6
Oakton & Orrington	1	1	2.6

Table 7A. -- continued

Variable	N	Frequency	Percent
Oakton & Walker	1	1	2.6
Orrington & Lincolnwood	1	1	2.6
Washington & Dewey	3	3	3.7
Total	39	39	100.0

Table 7B. -- Frequency Distribution of Students' School Type Attendance

Variable	N	Frequency	Percent
One School	28	28	71.8
Two Schools	11	11	28.2
Total	39	39	100.00

1. Chapter I support usually in the form of additional reading or mathematics instruction provided in a smaller group setting with a remediation approach.
2. Speech and language instruction to correct or modify speech deficiencies such as tongue thrust, stutter, etc.
3. Learning disabilities resources for students who have demonstrated specific learning handicaps such as underdeveloped small motor coordination or visual letter reversals.
4. Social or psychological staffing for students who demonstrate social maladies such as excessive tardiness or absences, and/or overtly aggressive behavior. Generally

students may be given additional assessments to pinpoint difficulties, then a specific program which might include counseling is developed.

5. In the school district sampled, English as a second language is also offered as a support service for students of Caribbean or Haitian ethnicity who are not natives of the United States, but considered African Americans in ethnic student coding. Although their basic language is a form of English, the district has determined that support services are needed in standard English instruction.

Data was collected relative to the students in the sample who may have received one or more than one of these services during their school years. Table 8. illustrates that while 61.5 percent of the sample students did not receive any services, 38.5 percent did receive supportive services which was considered a variable of any review of academic achievement and success.

High school placement in ability level courses has been depicted as a critical variable in school success. Students in the sample were generally placed in Reading and/or English courses at the low, regular, or honors track as ninth grade students based on their achievement scores, teacher recommendations, and academic success at the middle school level. Table 9. profiles the placement of the students in the sample at the end of eight years of public schooling. It is important to note that 20.5 percent of the sample students were retained during some point between kindergarten and fifth grade, and comprised a group of 8th graders who were a part of the study. However, 30.8 percent of the sample students entered high school in the low track and 48.7 percent were place in the regular/honors track. Of the nineteen students in the regular/honors track

grouping only two students (10 percent) were in honors English. Because of the small n these student were grouped as regular/honors. Placement was used as a dependent variable in determining significances relative to student success.

Table 8. -- Frequency Distribution of Receipt of Support Services

Variable	N	Frequency	Percent
No Support	24	24	61.5
Support	15	15	38.5
Total	39	39	100.0

Table 9. -- Frequency Distribution of Student Placement

Variable	N	Frequency	Percent
Retained	8	8	20.5
Low ACD Track	12	12	30.8
Avg/High Track	19	19	48.7
Total	39	39	100.0

Testing The Hypotheses

There were three key questions generated by the project:

1. Does early reading intervention impact the reading achievement of minority students?
2. Does early reading intervention affect the academic success in reading of minority students?
3. Does early reading intervention influence minority students' attitudes about reading.

Null hypothesis statements were developed to test the research questions presented. In addition, eighteen related hypothesis questions were developed.

HYPOTHESIS 1

Reading intervention provided for students identified as "low achievers" beginning in grade one through the Intensive Reading Program will have no sustained impact on student achievement in reading as measured by the California Achievement Test over a nine year period.

a. There will be no significant difference between the reading achievement of students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one and entered kindergarten at a more chronologically mature age (Jan.-Aug.) and those students who entered kindergarten at a less mature

chronological age (Sept.-Dec.) as measured over a nine year period on the California Achievement Test.

b. There will be no significant differences in reading achievement between students identified as "low achievers" in kindergarten who received reading intervention at grade one through the Intensive Reading Program and initially entered school living in a two parent home or guardian configuration and students identified as "low achievers" in kindergarten who received reading intervention at grade one and initially entered school living in a home with one parent or guardian configuration as measured over a nine year period on the California Achievement Test.

c. There will be no significant difference between the reading achievement of students identified as "low achievers" in kindergarten who received reading intervention at grade one through the Intensive Reading Program and their birth order (eldest, middle, or youngest) as measured over a nine year period on the California Achievement Test.

d. There will be no significant differences in reading achievement over a nine year period between students identified as "low achievers" in kindergarten who received reading intervention at grade one through the

Intensive Reading Program and remained in a single school as compared to those students who attend two schools in the district as measured over a nine year period by California Achievement Tests.

e. There will be no significant differences between male and female students in reading achievement for students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one as measured over a nine year period by California Achievement Tests.

f. There will be no significant differences in reading achievement between students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one and received additional support services during the regular school year and students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one but did not receiving additional support services in reading as measured over a nine year period by the California Achievement Test.

g. There will be no significant difference in the academic achievement of students who received one year of reading intervention in the Intensive Reading Program having been identified as "low achievers" in

kindergarten who received reading intervention at grade one and students who received two or more years of reading intervention in the Intensive Reading program as measured over nine years by the California Achievement Test.

HYPOTHESIS 2

Reading intervention provided through the Intensive Reading Program for students identified as "low achievers" beginning in grade one will have no sustained impact on the academic success of students in reading over a nine year period as measured by end of the year academic grades and student placement in ninth grade Reading/English courses.

a. There will be no significant difference between the academic success in reading of students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one and entered kindergarten at a more chronologically mature age (Jan.-Aug.) and those students who entered kindergarten at a less mature chronological age (Sept.- Dec.) as measured over a nine year period by end of the year academic grades and student placement in ninth grade Reading/English courses.

b. There will be no significant differences in the academic success in reading between students identified as "low achievers" in kindergarten who received reading intervention at grade one through the Intensive Reading Program and initially entered school living in a two parent home or guardian configuration and students identified as "low achievers" in kindergarten who received reading intervention at grade one and initially entered school living in a home with one parent or guardian configuration as measured over a nine year period by end of the year academic grades and student placement in ninth grade Reading/English courses.

c. There will be no correlation between the academic success in reading of students identified as "low achievers" in kindergarten who received reading intervention at grade one through the Intensive Reading Program and their birth order (eldest, middle, or youngest) as measured over a nine year period by end of the year academic grades and student placement in ninth grade Reading/English courses.

d. There will be no significant differences in the academic success in reading over a nine year period for students identified as "low achievers" in kindergarten who received reading intervention at grade one through the Intensive Reading Program and remained in a single school as compared

to those students who attend two schools in the district as measured over a nine year period by end of the year academic grades and student placement in ninth grade Reading/English courses.

e. There will be no significant differences between male and female students in their academic success in reading for students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one as measured over a nine year period by end of the year academic grades and student placement in ninth grade Reading/English courses.

f. There will be no significant differences in academic success between students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one and received additional support services during the regular school year and students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one but did not receiving additional support services in reading as measured over a nine year period by end of the year academic grades and student placement in ninth grade Reading/English courses.

g. There will be no significant difference in the academic success in reading of students who received one year of reading intervention in the Intensive Reading Program having been identified as "low achievers" in kindergarten and receiving reading intervention at grade one and students who received two or more years of reading intervention in the Intensive Reading program as measured over nine years by the California Achievement Test.

HYPOTHESIS 3

Reading intervention provided through the Intensive Reading Program for students identified as "low achievers" beginning in grade one will have no sustained impact or influence on students' attitudes about reading as measured after nine years of school instruction using a student attitude survey, teacher observations, and student interviews.

a. There will be no significant difference in student attitudes about reading between students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program and who were retained in one grade in elementary school and students who were identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program and who were not retained as measured after nine years of school instruction

using a student attitude survey, teacher observations, and student interviews.

b. There will be no significant differences between male and female students in their attitudes about reading for students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one as measured after nine years of school instruction using a student attitude survey, teacher observations, and student interviews.

c. There will be no significant difference in attitudes about reading between students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one and received additional support services during the regular school year and students identified as "low achievers" in kindergarten who received reading intervention through the Intensive Reading Program at grade one but did not receiving additional support services in reading as measured after nine years of school instruction using a student attitude survey, teacher observations, and student interviews.

d. There will be no significant difference in the attitudes of students about reading between students who received one year of reading intervention

in the Intensive Reading Program having been identified as "low achievers" in kindergarten and receiving reading intervention at grade one and students who received two or more years of reading intervention in the Intensive Reading program as measured over nine years by the California Achievement Test.

Data Analysis

Scores on the California Achievement Test (CAT 1979 edition), which had been administered annually, were analyzed using *frequency distribution* and a *repeated measures design* to determine if there was a sustained impact on student achievement in reading for students who were identified as "low achievers" beginning in grade one and who received reading intervention as presented in Hypothesis Statement I. Initially, data was collected based on student grade levels; however, because 20 percent of the students were retained the data was completed based on the number of years of public schooling in the same school district rather than on specific grade levels. Kindergarten is considered the initial year of identification and subsequent years comprise the time after one year of intervention. In order to provide consistency in reporting results, test data collected at the end of the kindergarten, first, third, fifth, seventh, and ninth years of public schooling were utilized for analysis. Since entrance and exit criteria for program participation was based on stanine scores, these scores were utilized for one component of the analysis. Stanine

scores were clustered into three components to describe achievement. Stanines 1-3 represent below average achievement, stanines 4-6 represent average achievement, and stanines 7-8 represent above average achievement.

In Chart 1. the frequency distribution of stanine scores for kindergarten, first, and third years are illustrated. In kindergarten 79.5 percent of the student participants were in the below average achievement range. The percentage of students in the average range was 20.5. These students initially scored in the average range; however, they were retested based on teacher recommendations by the local school reading specialists who reported stanines of 3 or less on the retest. The mean stanine score for kindergarten students was 3.051, with a standard deviation of .916 and a standard error of .147. After the first year of treatment, 50 percent of the students scored in the below average achievement range and 50 percent of the students scored in the average achievement range. The mean stanine score for first grade was 3.368 with a standard deviation of 1.149 and a standard error of .186. By the third year, however, (two years after the initial treatment), 38.5 percent scored in the below average range and 61.5 percent scored in the average achievement range. The mean stanine score at the end of the third year was 3.846, with a standard deviation of 1.329 and standard error of .213. The results of this analysis is visually depicted in Graph 1.

It is important to note that in 1985 a new form of the CAT with different norms was implemented. However, stanine scores continued to be the basis for determining student achievement and program intervention treatment. Therefore, the stanine scores reported and analyzed for years five and seven are based on the 1985 form of the CAT

Chart 1

FREQUENCY DISTRIBUTION RESULTS FOR ALL SAMPLE STUDENTS

	YEAR K	YEAR 1	YEAR 3	YEAR 5	YEAR 7	YEAR 9
STANINE	**%**	**%**	**%**	**%**	**%**	**%**
1	**8**	**8**	**8**	5	2	13
2	**8**	**13**	5	5	2	13
3	**64**	**31**	25	23	21	38
4	**12**	**33**	25	38	44	18
5	**8**	**15**	28	21	18	10
6			8	8	13	0
7						5
8						0
9						3
TOTAL	100	100	99	100	100	100

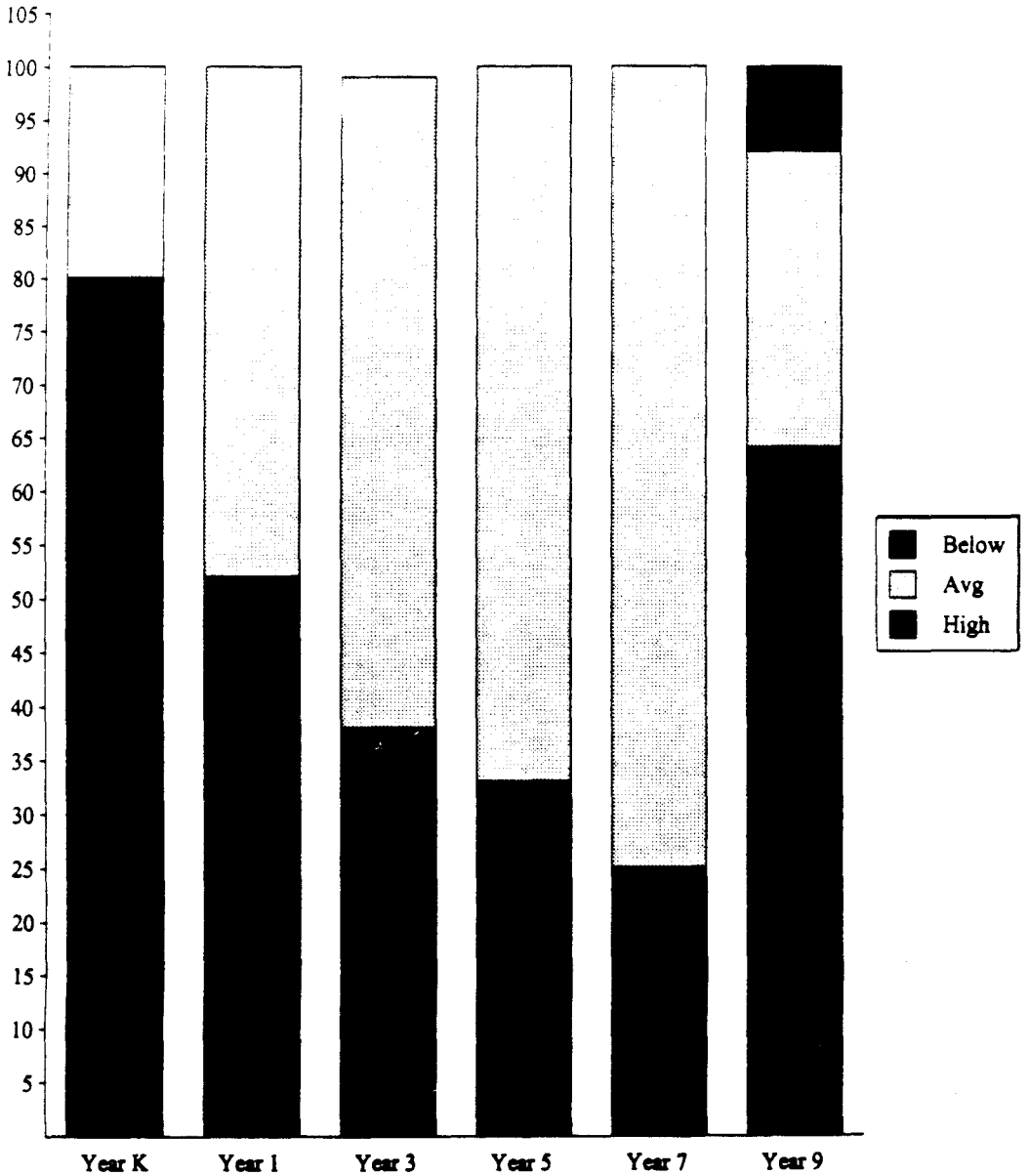
Graph 1

Frequency Distribution Results

Clustered Stanines

For All Sample Students

(1-3 = Below 4-6 = Avg 7-9 = High)



and cannot be compared with stanine scores for the kindergarten, first, and third years. After the fifth year, 33.3 percent of the students continued to score in the below average range, while 66.7 percent of the students scored in the average achievement range. The mean stanine score was 3.872, with a standard deviation of .192 and a standard error of 1.196. After the seventh year, 25.6 percent of the students scored in the below average range and 74.4% scored in the average range. The mean score was 4.103, with a standard deviation of 1.119 and a standard error of .179.

After the eighth year, 80 percent of the students continued on to high school and 20 percent remained in elementary school (those who had been retained). At the high school all ninth grade students were administered the Degrees of Reading Power test as (described in Chapter 3) which used different scoring standards. Stanine scores were provided for this test for those students in the sample population who went on to high school. Chart 2 illustrates the frequency distribution of students at the varying stanines by placement levels. Graph 2 presents a visual representation of this data.

To determine if there were statistically significant differences between the stanine clusters of kindergarten, first, and third year scores which utilized the same test edition and fifth and seventh grade scores which used the same test edition, a Paired t-test was conducted. Table 10. illustrates the results, which indicate that there was not statistically significant difference between stanines in grades kindergarten to the end of the first year, between the first year to the end of the third year, or between the fifth year to the end of the seventh year. However, there was a statistically significant difference between the

Chart 2

FREQUENCY DISTRIBUTION PERCENTAGE RESULTS FOR SAMPLE STUDENTS BY PLACEMENT

GROUP 1 = Retain N = 8
GROUP 2 = Low N = 12
GROUP 3 = Average/High N = 19

YEAR	K			1			3			5			7			9		
	GROUP			GROUP			GROUP			GROUP			GROUP			GROUP		
STANINE	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1	12.5	8.3	5.3	25	0	5	12.5	0	11	25	17		0	8	0	12.5	17	5
2	25	0	5.3	25	0	16	0	0	11	0	8		0	8	0	12.5	17	11
3	50	75	63	37.5	42	21	62.5	50	16	37.5	25		25	25	16	75	25	26
4	12.5	8.3	21	12.5	42	37	12.5	50	26	37.5	33		50	41	42		25	32
5		8.3	5.3	0	16	21	12.5	0	21	0	8		12.5	8	32		0	21
6									16		8		12.5	8	11		0	0
7																	17	0
8																		0
9																		5
TOTAL	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100

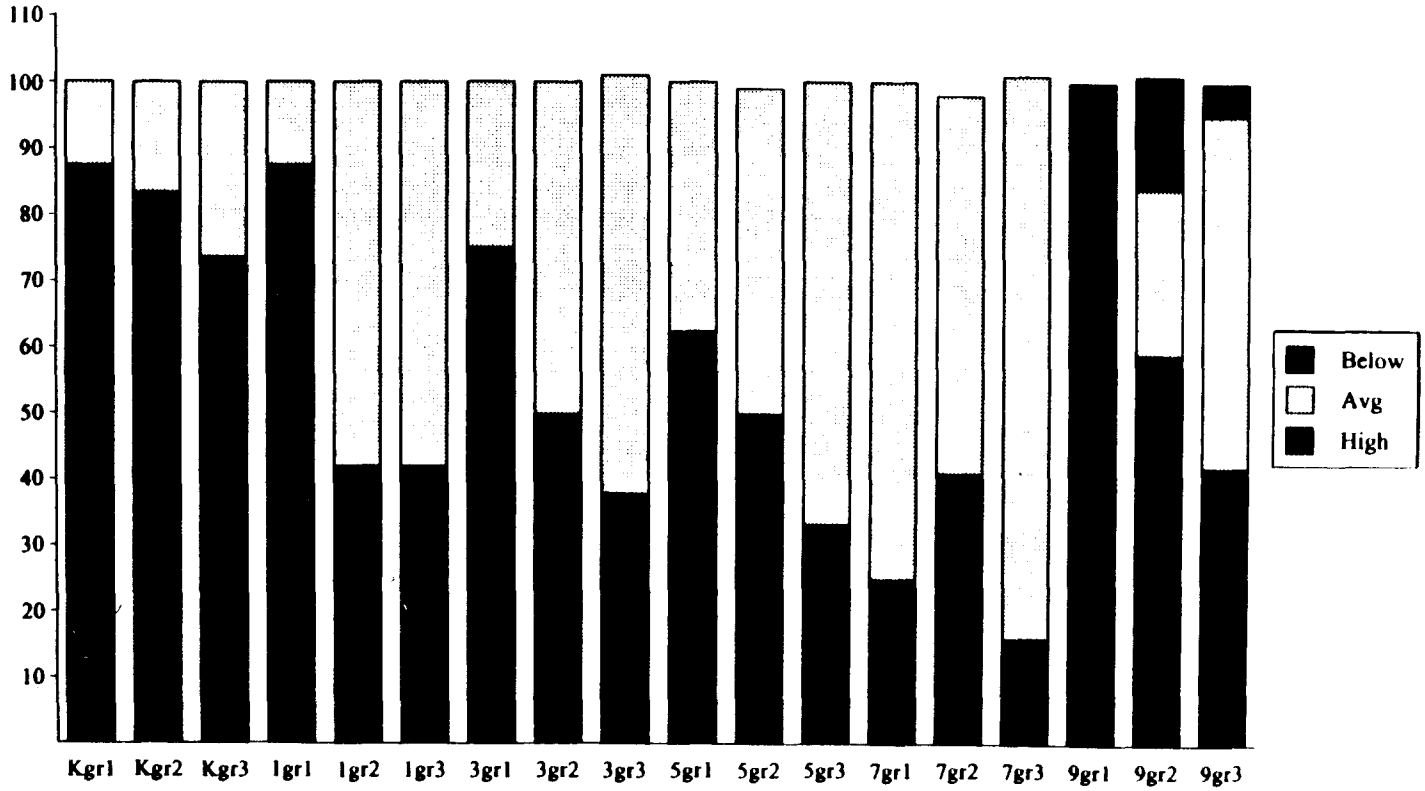
Graph 2

Frequency Distribution Percentage Results

Clustered Stanines

For Sample Students By Placement

(1-3 = Below 4-6 = Avg 7-9 = High)



kindergarten and third year stanines where p=.002 (p>.05) with a mean value of -.7949, a standard deviation of 1.53 and a t value of -3.26.

The differentiation in testing instruments suggested that an alternate means of analyzing the data to determine the sustained impact of the early intervention process should be considered. In addition, stanine scores, although they are units on an equal interval scale, are less precise than other methods of scoring. In order to create a standardized score with a standard mean and standard deviation raw scores were converted to z Scores with a mean distribution of 0 and a standard deviation of 1. This is advantageous because no variable or difference in the test form will exert more influence because it is measured on a different scale. The form of the probability distribution is not changed by the transformation to z scores because the probability of any value of z is the probability of the corresponding value of $\overline{x}$.[128]

Table 10. -- Paired t -Test of Stanine Clusters

	N	$\overline{X}$	SD	t	p
K	39	3.051	.916	-1.39	1.72
1	39	3.359	1.135		
1	39	3.359	1.135	-1.30	.202
3	39	3.846	1.329		
5	39	3.8718	1.196	-1.30	.202
7	39	4.119	1.119		
K	39	3.051	.916	-3.26	.002*
3	39	3.846	1.329		

[128] William L. Hayes, Statistics, Holt, Rinehart, and Winston, 1988.

Z score conversions were completed using the standard formula of the raw score minus the mean divided by the standard deviation for all cases. In order to determine if there was any significant difference in z scores between kindergarten and the first year after treatment and subsequent years a Paired T test analysis was conducted.

The results are illustrated in Table 11. where there were no statistically significant differences betwen z scores from kindergarten to the end of the first year, or between the subsequent years of first and third, third and fifth, fifth and seventh, and seventh and ninth years after the intervention program treatment.

Table 11. -- Paired t-Test - Z Scores and Differences in Achievement

	N	$\bar{X}$	SD	t	p
K	39	.0928	.753	.51	.613
1	39	.0000	1.000		
1	39	.0000	1.000	.00	1.000
3	39	.0000	1.000		
3	39	-.0001	1.000	.00	1.000
5	39	-.0000	1.000		
5	39	-.0000	1.000	-.78	.439
7	39	.1141	.910		
7	39	.1141	.910	.78	.440
9	39	-.0000	1.000		
K	39	.0928	.753	.48	.631

Table 11. -- continued

	N	$\overline{X}$	SD	t	p
3	39	-.0001	1.000		
K	39	.0928	.753	.51	.612
5	39	-.0000	1.000		
K	39	.0928	.753	-.11	.911
7	39	.0928	.753	-.11	.911
K	39	.0928	.753	.49	.627
9	39	-.0000	1.000		

In order to validate the results of the Paired t-test, a repeated measures design using a Multiple Analysis of Variance procedure was completed on z scores for the first, third, fifth, seventh, and ninth years after treatment in order to futher explore the possibilities of significant differences of mean scores over the nine year period. Table 12. illustrates the results of this analysis. There were not significant differences between z scores for the kindergarten, first, third, fifth, seventh, and ninth years.

In order to determine if other variables influenced the results of the analysis of Hypothesis I, z scores were used as the achievement data to analyze other factors.

In Hypothesis Ia., birth maturity was considered as an independent variable relative to student achievement. In order to compress school entrance birth month data, data was recoded to delineate students who ranged in age from from 5.4 months to 5.10 months as being more chronologically mature (1) and students who ranged from 5.0 to 5.3

Table 12. -- Multiple Analysis of Variance of Z Scores for Kindergarten, Years One, Three, Five, Seven, and Nine

Univariate F-Tests of Significance with (1/38) DF				
N=39				
Variable	SS	MS	F	Sig. of F
Z score K	.33580	.33580	.59219	.446
Z score 1	.00000	.00000	1.00013	1.000
Z score 3	.00000	.00000	.00000	1.000
Z score 5	.00000	.00000	.00000	1.000
Z score 7	.50803	.50803	.82744	.438
Z score 9	.00000	.00000	.00000	1.000

months as being chronologically less mature (2). An Analysis of Variance (ANOVA) procedure was conducted to determine if there was any significant difference between students in the sample population who entered kindergarten at a more chronologically mature age when compared with students in the sample who entered at a less mature age as described in the group profile of this chapter. This recorded data was matched with z score data for kindergarten, first, third, fifth, seventh, and ninth years after the intervention program treatment. Table 13. illustrates the analysis results which show that there were no significant differences in birth maturity relative to reading after kindergarten, third, fifth, seventh, and ninth years after the program intervention treatment However, a trend is noted after the first year following the program intervention treatment where $p=.070$ ($p<.05$) with 1/37 degrees of freedom and an F value of 3.48. The mean of the fourteen students who were chronologically more mature was .39 and the mean of the twenty-five students who were chronologically less mature was -.22.

Table 13. -- Analysis of Variance Results of Birth Maturity Between Younger and Older Students and Achievement

	Group 1 (Older)		Group 2 (Younger)		DF=1/37	
	N	$\overline{X}$	N	$\overline{X}$	f	p
K	14	.32	25	-.04	2.11	.154
1	14	.39	25	-.22	3.477	.070**
3	14	.08	25	-.04	.131	.719
5	14	-.05	25	.03	.058	.811
7	14	-.12	25	.25	1.460	.235
9	14	-.14	25	.08	.428	.517

p > .05* p > .05 ** indicates a trend

Hypotheses Ib. proposes that there will be no significant differences in reading achievement between students who resided with one parent compared with students who resided with more that one parent when enrolled in kindergarten. The data analyzed was recoded to reflect the residence status of the student relative to status of a single parent/guardian (1) or two parents/guardians (i.e., both natural parents/guardians , one natural parent and a step parent or guardian) (2).

An ANOVA procedure was conducted using the z score and the residence status of the student. The data analysis as described in Table 14. indicates that there was no

statistical difference between student who resided with a single parent versus students for a two parent home.

Table 14. -- Analysis of Variance Results of Student Parental Residence and Achievement

	Group 1 (Single)		Group 2 (Two Parents)			
	N	$\overline{X}$	N	$\overline{X}$	f	p
K	22	.07	17	.13	.061	.806
1	22	-.16	17	.21	1.284	.264
3	22	.15	17	1.20	1.216	.277
5	22	.05	17	-.06	.110	.743
7	22	.12	17	.10	.004	.947
9	22	-.11	17	.15	.630	.433

In hypothesis Ic. the birth order of the student relative to reading achievement is considered. Data was recoded to reflect the birth order of the sample student in relationship to being the oldest (2), middle (3), or youngest (4) child in the family at the time of kindergarten enrollment. Students who were the only child were not included in the analysis since the purpose of this variable was to determine if being one of additional children was a factor related to academic achievement.

An ANOVA was conducted using the z score and the birth order of the sample students. The data analysis as illustrated in Table 15. indicates that there was no statistically significant differences in achievement between students who were the oldest, middle, or youngest child for kindergarten, and after the third, fifth, seventh, and ninth years following the program intervention treatment. However, a trend should be noted for students after the first year of the program intervention treatment where $p=.68$ ($p<.05$) with 2/32 degrees of freedom and a F value of .247. The mean score for the six students who were the youngest child was .18, the mean score for the students who were the youngest was .06, and the mean score for the middle students was -.13.

Hypothesis Id. responds to the question of whether a significant difference in achievement would be noticed based on the consisteny of the number of schools the sample population students attended. As indicated in the group profile, there were small numbers of students accross schools but a larger proportion of students who attended two schools during the course of their elementary school program. Therefore, the school attendance data was recoded to reflect attendance at one school (1) versus attendance at two schools (2). The variable was then renamed school type.

Table 15. -- Analysis of Variance Results of Student Birth Order and Achievement

	Group 1 (Older)		Group 2 (Middle)		Group 3 (Younger)				
	N	$\overline{X}$	N	$\overline{X}$	N	$\overline{x}$	f	p	Df
K	12	.38	15	.14	8	.02	.631	.539	2/32
1	12	.42	15	-.43	8	.29	2.920	.068	**2/22
3	12	.06	15	-.13	8	.18	.247	.783	
5	12	.12	15	-.08	8	-.18	.214	.809	
7	12	.41	15	-.07	8	-.19	1.278	.293	
9	12	.41	15	-.07	8	-.19			

**p<.05 indicates a slight trend

An ANOVA procedure was conducted using z scores by school type for kindergarten, the first, third, fifth, seventh, and ninth years after treatment. The results are presented in Table 16. and indicate that a trend occurs at kindergarten where the students were slightly different initially, where p=.076 with 1/37 degrees of freedom and an F value of 3.337. The mean score of the eleven students who attended more than one school was .43 and the mean score of the twenty-eight students who attended a single school was -.04. For subsequent years there were no statistically significant differencts.

In Hypothesis Ie.. the issue of gender influence as a variable relative to student achievement was analyzed using an ANOVA procedure. The results are reported in Table 17. and show that there was no significant difference in achievement in gender after kindergarten, first, third, fifth, seventh, and ninth years following the program intervention treatment.

Support services was an additional variable tested to determine significance and data was collected relative to the type of service offered. Small sample numbers suggested that a comparison should be made relative to students who did not receive any support services versus those who did. Therefore, data on support services was recoded to reflect no services received (1) or receipt of services (2).

Table 16. -- Analysis of Variance of Student School Type and Achievement

	Group 1		Group 2			
	N	$\overline{X}$	N	$\overline{X}$	f	p
K	28	-.04	11	.43	3.337	.076
1	28	.01	11	-.02	.005	.944
3	28	.01	11	-.04	.020	.887
5	28	.05	11	.13	.268	.608
7	28	.14	11	.06	.061	.807
9	28	.04	11	-.09	.134	.717

Table 17. -- Analysis of Variance Recivity of Gender by Student Achievement (z Scores)

	Group 1 (male)		Group 2 (female)			
N=39	N	$\overline{X}$	N	$\overline{X}$	f	p
K	23	.07	13	.14	.072	.790
1	23	.11	13	-.23	1.012	.321
3	23	-.02	13	.04	.035	.854
5	23	.08	13	-.16	.495	.486
7	23	.14	13	.07	.042	.839
9	23	.12	13	-.25	1.225	.275

An ANOVA procedure was conducted using z scores and recoded support services data. Table 18. illustrates the results of the analysis and indicate that there were no statistically significant differences between students who received support services and those who did not in kindergarten, first, third, fifth, seventh, and ninth years after the program intervention treatment.

Table 18. -- Analysis of Variance Results on Support Services and Achievement

	Group 1 (No Support)		Group 2 (Support)			
	N	$\overline{X}$	N	$\overline{X}$	f	p
K	24	.14	15	-.23	1.262	.268
1	24	.04	15	-.07	.115	.736
3	24	.08	15	-.12	.366	.549
5	24	.14	15	.07	.059	.810
7	24	.14	15	-.04	.350	.558
9	24	.15	15	-.23	1.346	.253

Hypothesis Ig. addresses the issue of the number of years sample students received the intervention treatment. Based on the small sample size, an initial review of the data divided students into two primary catagories: those who received only one year of treatment versus those who received more than one year of treatment. Since CAT stanine scores were utilized as the intervention program entrance and exit criteria., an ANOVA procedure was conducted using clustered stanine scores at the end of the first, third, and fifth years of schooling following the intervention treatment. With thirty-eight cases reported, the results are illustrated in Table 19. and indicate that there were no significant differences between th enumber of program years and stanine cluster scores for kindergarten, third, fifth, seventh, and ninth years after the intervention treatment.

However, significance is suggested at after the first year where p=.009 with 1/37 degrees of freedom and a mean of .38.

Table 19. -- Analysis of Variance Results for Number of Program Years and Achievment

	Group 1		Group 2			
	N	$\bar{X}$	N	$\bar{X}$	f	p
K	20	30	18	-.07	2.622	.115
1	20	.38	18	-.46	7.626	.009*
3	20	.19	18	-.24	1.776	.191
5	20	.18	18	-.15	1.184	.284
7	20	.34	18	-.10	2.197	.148
9	20	.77	18	-.32	3.565	.068**

*p>.05 **p>.05 indicates a trend

It also appeared important to determine the recivity rate of sample students who received treatment, exited the program and returned (1) versus students who exited the program after one year or two or more years, but who did not return to the program. An ANOVA procedure was performed using clustered stanine scores and the number of program years and rated of recivity. The tabulated results are reported in Table 20. and indicate that there were no significant differences in achievement means based on students

who re-entered the program after the third, seventh, or ninth yeaars after the intervention program treatment. There was a significant difference noted in the fifth year after the program intervention treatment were where p=.021 with 1/37 degrees of freedom.

Table 20. -- Analysis of Variance Results for Recivity and Achievement

	Group 1		Group 2			
	N	$\overline{X}$	N	$\overline{X}$	f	p
K	17	.04	21	.20	.494	.487
1	17	.21	21	-.20	1.731	.197
3	17	.77	21	-.15	1.310	.260
5	17	-.38	21	.36	5.872	.021*
7	17	.17	21	.09	.070	.793
9	17	-.20	21	.14	1.205	.280

*p<.05

Because the results of the ANOVA procedures for program years and recidity were based on clustered stanine scores which were generated by different test forms, an additional ANOVA proceedure was completed using the stanine cluster scores for grades kindergarten, first, third, fifth, seventh, and ninth. The results, as reported in Table 21., where there were no significant differences in the achievement means based on students

returning to the program. There was no significant progress for other years or recivity as reported in Table 22.

Table 21. -- Analysis of Variance Results for the Number of Program Years by Stanine Achievement

	Group (one year)		Group 2 (more than one year)		DF = 1/37	
	N	$\bar{X}$	N	$\bar{X}$	f	p
K	21	1.29	18	1.11	1.803	.188
1	21	1.81	18	1.11	34.874	.000*

*p<.05

Table 22. -- Analysis of Variance Results of Recivity and Stanine Achievement

	Group 1 (Red NO)		Group 2 (Ret YES)			
	N	$\bar{X}$	N	$\bar{X}$	f	p
K	17	1.18	21	1.24	.205	.654
1	17	1.53	21	1.43	.367	.549
3						
5	17	1.59	21	1.76	1.187	.264

Academic Success

The second research question relative to the perceived academic success of the sample population students analyzed data which used student placement after the ninth year of public school instruction and student academic grades as the primary dependent variables to consider.

The group profile data delineated three levels of student placement: those who were retained in one grade, those who were placed in the low academic track, and those who were placed in the average or high academic track. Hypothesis 2 suggests that there will be no sustained impact on the academic success of students who received the treatment during their first grade year based on student placement.

Data on student academic grades was collected based on numeric grades (i.e., Outstanding=1, Excellent=2, Satisfactory=3, Needs Improvement=4, Unsatisfactory+5) given at the end of kindergarten, first, third, and fifth years after treatment. Grades based on alphabetic designations and given after the seventh and ninth years were converted to these numeric grades (i.e., A=1, B=2, C=3, D=4, F=5). Intermediary grades (C+, D-, etc.) were recorded as the single alphabetic grade. All numeric grades were entered based on the teacher determination of academic performance at grade level, above grade level, or below grade level. The distribution of these levels produced a small number of sample students for analysis. In order to provide a clearer picture of group data, these grades were recoded to represent an academic grade at or above grade level (1) or below grade level (2).

A cross-tabulation process was used to generate a frequency distribution and to compute the Chi-Square factor for student grades relative to student placement and student academic grades. The results are reported in Table 23. and indicate that there were no significant differences in grades and placement was apparent for kindergarten, first, and third years after program intervention treatment. However, significant differences were noticed for the fifth, seventh, and ninth years where 53.8 percent of the students across all placements received low grades and 46.1 percent of the students across all placements received average/high grades after the fifth year; 46.2 percent of the students across all placements received low grades and 53.8 percent of the students received average grades after the seventh and ninth years following the program intervention treatment. Significance levels were analyzed at .041, .010, and .000 respectively for those three years.

Table 23.-- Cross Tabulation Results of Reading Grades and Student Placement Frequency and Significance

N=39 % of total=100

Year	Frequency-Percent Below Average Grade			Frequency-Percent Average Grade			Chi-Square	DF	Significance
	Group 1 (Retained)	Group 2 (Low)	Group 3 (Avg/High)	Group 1 (Retained)	Group 2 (Low)	Group 3 (Avg/High)			
K	8-20.5%	11-28.2%	18-46.2%	0	1-2.6%	1-2.6%	0.686	2	.7095
1	0	1-2.6%	3-7.7%	8-20.5%	11-28.2	16-41.0%	1.594	2	.4506
2	2-5.1%	2-5.1%	6-15.4%	6-15.4%	10-25.6%	13-33.3%	.860	2	.6505
5	2-5.1%	5-12.8%	14-35.9%	6-15.5%	7-17.9%	5-12.8%	6.40	2	.041*
7	0	6-15.4%	12-30.8%	8-20.5%	6-15.4%	7-17.9%	9.13	2	.010*
9	0	2-5.1%	19-48.7%	8-20.5%	10-25.6%	0	32.29	2	.000*

*p<.05

Chart 3. provides a description of the percentages of these cluster grades. Graph 3 illustrates the data results of these academic grade clusters for the end of kindergarten, first, third, fifth, and the ninth years.

An ANOVA procedure was conducted to determine if there was a significant difference between the clustered reading grades and student placement at kindergarten, first, third, fifth, seventh, and ninth years after the intervention program treatment. In Table 24. the results indicate that there were no significant differences between reading grades and student placement for kindergarten, first, and third years. However, a significant difference was noted for the fifth, seventh, and ninth years and the reported results were: p=.040 for the fifth year; p=.008 for the seventh year; p=.000 for the ninth year after the program intervention.

With significances noted using the ANOVA, further analysis was conducted using a discriminate function to determine the best possible linear combination of variables for predicting which catagories would contain cases. The results of this analysis are illustrated in Table 25. and note a level of significance for Function 1 at the .000 level p>.05 which indicates a significant relationship between placement and clustered reading grades in the ninth year.

Chart 3

FREQUENCY DISTRIBUTION RESULTS IN PERCENTAGES OF CLUSTER GRADES FOR ALL STUDENTS BY PLACEMENT

Grades: LOW
AVERAGE

YEAR	1	3 5	7 9
	RETAIN N=8	LOW N=12	AVERAGE/HIGH N=19
K	Low = 100% Avg = 0	Low = 58% Avg = 42%	Low = 84% Avg = 16%
1	Low = 100% Avg = 0	Low = 42% Avg = 58%	Low = 16% Avg = 84%
3	Low = 25% Avg = 75%	Low = 33% Avg = 66%	Low = 32% Avg = 68%
5	Low = 25% Avg = 75%	Low = 42% Avg = 58%	Low = 74% Avg = 26%
7	Low = 0 Avg = 100%	Low = 17% Avg = 83%	Low = 63% Avg = 37%
9	Low = 12.5 Avg = 87.5	Low = 17% Avg = 83%	Low = 100% Avg = 0

Graph 3

Frequency Distribution Results

In Percentages Of Cluster Grades

For All Students By Placement

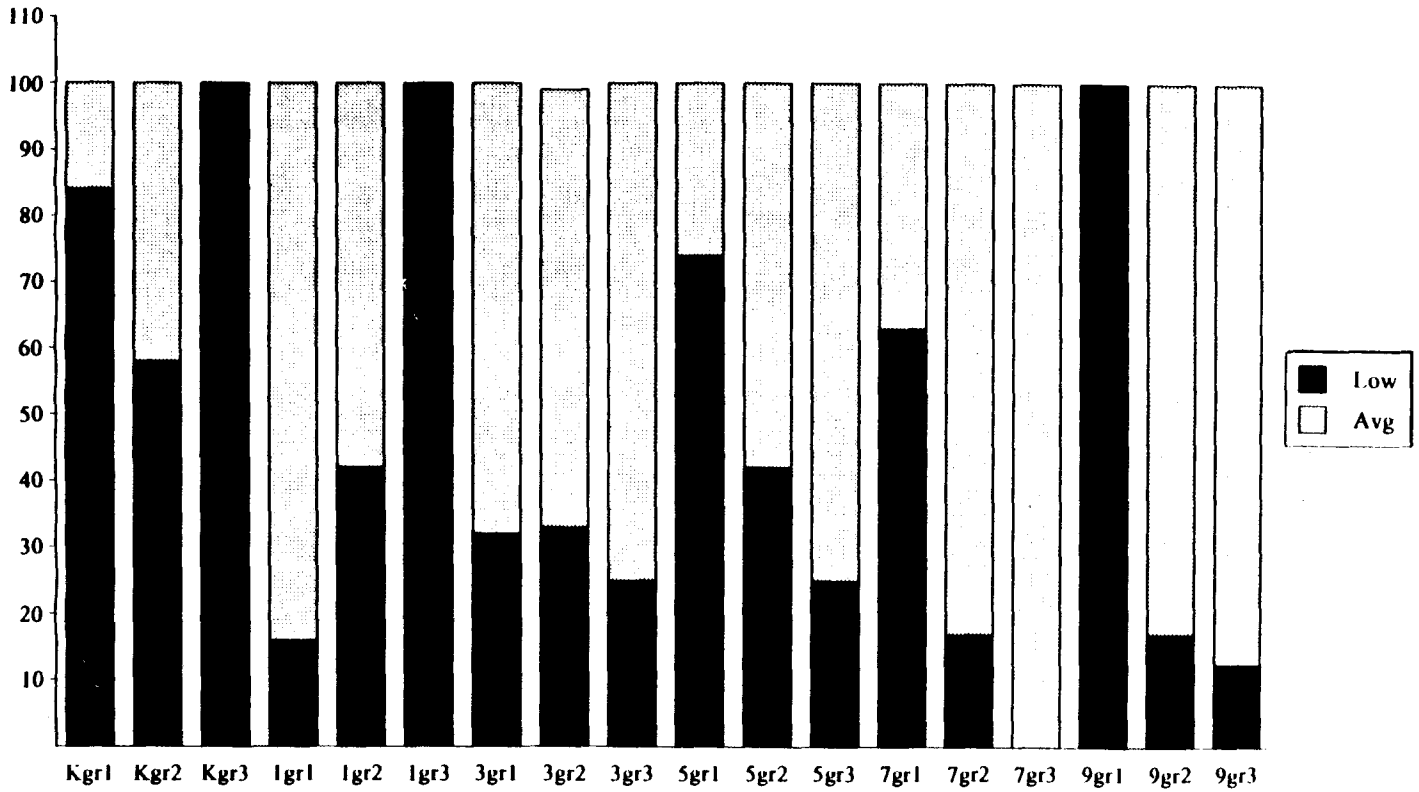


Table 24. -- Analysis of Variance Results of Reading Grades and Student Placement

	Group 1 (Retained)		Group 2 (Low)		Group 3 (Avg/High)			
	N	$\overline{X}$	N	$\overline{X}$	N	$\overline{X}$	f	p
K	8	1.00	12	1.08	19	1.05	.323	.726
1	8	2.00	12	1.92	19	1.84	.767	.472
3	8	1.75	12	1.83	19	1.68	.406	.669
5	8	1.75	12	1.58	19	1.26	3.536	.040*
7	8	2.00	12	1.50	19	1.37	5.509	.008*
9	8	2.00	12	1.83	19	1.00	86.677	.000*

Table 25. -- Canonical Discriminant Functions for Reading Grades by Placement

Function	Eigenvalue	% of Variance	Cumulative Percent	Cannonical Correlation	Squared	After Function	Wilks' Lambda	Chi-Squared	D.F.	Significance
1*	8.39896	96.68	96.68	.9453070	89%	0	.0825566	53.627	12	.0000
2*	.28875	3.32	100.0	.4733427	22%	1	.7759467	5.4539	5	0.36

*marks the 2 canonical discriminant functions remaining in the analysis $p<.05$

Standardized Canonical Discriminant Function Coefficients

Reading Grade	Function
K	-.90838
1	.61761
3	-.13163
5	1.00041
7	-.43059
9	1.14463

Questions related to the relationship of other factors and student academic success generated additional hypotheses. Hypothesis 2a. suggests that there will be no significant differences between the academic success in reading of students who entered kindergarten at a more chronologically mature age (5th birthday Jan.-Aug.'76) and those who entered at a less chronologically mature age (5th birthday Sept.-Dec.'77). An ANOVA procedure was conducted using placement and birth maturity as the variables relative to student success after the ninth year following the program intervention treatment. The results presented in Table 26. indicate that there were were no significant differences between the two groups.

Hypothesis 2b proposes that there will be no significant differences in the academic reading success of sample students based on the number of parents they resided with when entering kindergarten. An ANOVA procedure was performed with the variables of student placement and parental residency status for the sample students at kindergarten. Table 27. represents the results of the analysis and reports that there was no significant difference between students who resided in a single parent environment versus students who resided in a two parent environment relative to student placement.

Table 26. -- Analysis of Variance Results for Birth Maturity and Student Success

	Group 1 (Younger)		Group 2 (Older)			
	N	$\bar{X}$	N	$\bar{X}$	f	p
K	25	2.2	14	2.43	0.740	0.395

Table 27. -- Analysis of Variance Results of Residency Status and Success

	Group I (Single Parent)		Group 2 (Two Parents)			
	N	$\bar{X}$	N	$\bar{X}$	f	p
K	22	22	17	17	.007	.935

Hypothesis 2c. suggests that there will be no significant differences between the academic success in reading of students relative to their family birth order (oldest, middle, or youngest child). Sample students who were the single child at the time of entrance in kindergarten were excluded. The remaining sample n of 36 was tested for significance using an ANOVA procedure on the variables of birth order and student placement relative to the ninth year after the intervention treatment. Table 28. illustrates results that indicate there were no significant differences between students who were the oldest,

middle, or youngest child in the family at the time of kindergarten enrollment relative to student placement.

Table 28. -- Analysis of Variance Results of Student Birth Order and Academic Success

	Group 1 (Older)		Group 2 (Middle)		Group 3 (Younger)			
	N	$\overline{X}$	N	$\overline{X}$	N	$\overline{X}$	f	p
9	8	3.00	12	2.92	19	2.42	1,681	.200

In hypothesis 2d. the number of schools attended is the variable understudy relative to student academic success. The hypothesis proposes that there will be no significant difference between the success of students who attend one school and those who attend two schools after kindergarten, first, third, fifth, seventh, and ninth years after the intervention treatment. An ANOVA procedure was conducted using the variables of school type 1 (single school) and school type 2 (two schools) and student placement after nine years after the program intervention treatment. The results are reported in Table 29. and indicate that there were no significant differences between sample students who attended one school versus those who attended two schools relative to placement.

Table 29. -- Analysis of Variance Results School Type and Student Placement

	Group 1 (1 school)			Group 2 (2 schools)			
	N	$\bar{X}$		N	$\bar{X}$	f	p
9	28	2.32	11	11	2.18	.240	.627

Hypothesis 2e. proposes that significant differences will not exist between male and female sample students relative to student academic success. Using the variables of student placement and sex, an ANOVA procedure was performed to test the hypothesis. Table 30. illustrates the results generated for sample students nine years after the program intervention treatment. The results indicate that there was no significant difference between male and female students relative to placement.

Table 30. – Analysis of Variance Results of Gender and Student Placement

	Group 1		Group 2			
	N	$\bar{X}$	N	$\bar{X}$	f	p
9	26	2.31	13	2.23	.080	.779

In hypothesis 2f., support services is the variable that is under consideration. The hypothesis suggests that there will be no significant differences in academic success between students who have received support services and students who have not received such services during their school years, as reported after the ninth year of the program intervention treatment. An ANOVA was conducted to test the hypothesis using the variables of student placement and support services. The results reported in Table 31. indicate that there was a significant difference between students who received support services and those who did not relative to placement where p=.008 (p >.05) with 1/37 degrees of freedom and an F value of 7.903. The twenty-four students who did not receive support had a mean score of 2.54 and the fifteen students who received support had a mean score of 1.87.

Table 31. – Analysis of Variance Results for Support Services Relative to Placement

Group 1		Group 2			
N	$\bar{X}$	N	$\bar{X}$	f	p
24	2.54	15	1.87	7.903	.008*

*p>.05

The number of years the student received the intervention treatment was the basis for Hypothesis 2g. The hypothesis proposes that there will be no significant differences in academic success in reading between the sample students who were in the intervention program for one year versus the students who were in the intervention program for more than one year. Using program years and placement as variables, an ANOVA procedure was conducted for sample students after the ninth year of the program intervention treatment. Table 32. illustrates that there was no significant differences between students who were in the program one year versus those in the program for more than one year.

Table 32. -- Analysis of Variance Results of Years of Program Participation and Placement

	Group 1 (1 year)		Group 2 (More than 1 year)			
	N	$\overline{X}$	N	$\overline{X}$	f	p
9	21	.248	18	.206	2.860	.099

Attitude

The final research question examined the influence the intervention program had on student attitudes about reading. Hypothesis 3 suggests that the intervention program

treatment would have no influence or sustained impact on the sample student's attitudes about reading. To test this hypothesis data, twelve items in the student attitude survey, which were stated in the negative, were recoded to correspond with the positive coding of the other thirteen survey items (i.e., 1=strongly disagree changed to 5=strongly agree). A frequency distribution procedure was conducted to gain a mean score for the total number of twenty survey items. Table 33. illustrates the distribution of the students' overall attitude about reading. The mean score was 3.244 with a standard deviation of .540 and a standard error of .086.

The survey questions were then clustered into three general categories: general attitudes about reading, attitudes about school related reading, and attitudes about recreational reading. A frequency distribution procedure was conducted to gain a mean score for each clustered category. Tables 34. through 36. report the frequency of these scores with a mean score of 3.232, a standard deviation of .601 and a standard error of .096 for general attitudes about reading; a mean score of 3.417, a standard deviation of .677 and a standard error of .108 for attitudes about school related reading; and a mean score of 3.158 with a standard deviation of .717 and a standard error score of .115 for attitudes about recreational reading.

Table 33. -- Frequency Distribution of Overall Student Activities

N=39		
Variable	Frequency	Percent
Strongly Disagree	1	2.5
Disagree	11	28.2
Undecided	22	56.4
Agree	5	12.9
Strongly Agree	0	0
Total	39	100
Mean=3.244	Standard Deviation=.540	Standard Error=.086

Table 34. -- Frequency Distribution of Students' General Reading Activities

N=39		
Variable	Frequency	Percent
Strongly Disagree	0	0
Disagree	14	35.9
Undecided	19	48.7
Agree	6	15.4
Strongly Agree	0	
Total	39	100
Mean=3.232	Standard Deviation=.601	Standard Error=.096

Table 35. -- Frequency Distribution of Student Attitudes Towards School Related Reading

N=39

Variable	Frequency	Percent
Strongly Disagree	1	2.6
Disagree	7	17.9
Undecided	20	51.3
Agree	11	28.2
Strongly Agree	0	0
Total	39	100

Mean=3.417 Standard Deviation=.677 Standard Error=.108

Table 36. -- Frequency Distribution of Student Attitudes Towards Recreational Reading

N=39

Variable	Frequency	Percent
Strongly Disagree	3	7.7
Disagree	9	23.1
Undecided	23	59.0
Agree	4	10.2
Strongly Agree	0	0
Total	39	100

Mean=3.158 Standard Deviation=.717 Standard Error=.115

A ANOVA procedure was conducted using placement and the mean of the total responses to the attitude survey as the variables. Table 37. indicates that there were no significant differences between the mean score of the overall student attitude survey and student placement. An ANOVA procedure was also conducted using placement and the mean of each cluster of attitudes about reading. The results are reported in Tables 38.through 40. and indicate that there were no significant differences between the attitudes of students based on their high school placement.

Since z scores standardized the raw scores and were utilized as a measure of student achievement, a Pierson's Correlation Coefficient analysis was conducted to determine if there was a relationship between student achievement and the mean of the overall general student attitude using the z score mean of the sample students after the ninth year and the mean of the total survey for analysis. Table 41. illustrates the results that indicate there was no significant relationship between the two means.

To enable the researcher to verify and compare sample student responses to attitudinal data, teacher observation surveys on perceived student attitudes were also analyzed. All responses on the teacher survey were stated in positive form. A frequency distribution process was conducted to obtain a mean score of the total responses to the fourteen items on the teacher observation survey. Table 42. reports the results of this process and indicates that the mean score was 3.117 with a standard deviation of 1.523 and a standard error of .244.

Table 37. -- Analysis of Variance Results of Student Overall Activities and Student Placement

Group 1 (Retained)		Group 2 (Low Ability)		Group 3 (Avg/High Ability)			
N	X	N	X	N	X	f	p
8	3.02	12	3.11	19	3.42	2.228	0.12

Table 38. -- Analysis of Variance Results of Student Overall Attitudes and Placement

Group 1		Group 2		Group 3			
N	X	N	X	N	X	f	p
8	2.50	12	3.47	19	2.67	1.003	.377

Table 39. -- Analysis of Variance Results of Student Attitudes Towards School Related Reading and Placement

Group 1		Group 2		Group 3			
N	X	N	X	N	X	f	p
8	3.41	12	3.31	19	3.49	0.24	0.79

Table 40. -- Analysis of Variance Results of Student Attitudes Towards Recreational Reading

Group 1		Group 2		Group 3			
N	X	N	X	N	X	f	p
8	3.04	12	3.13	19	3.29	.609	.549

Table 41. Correlation Results of z Scores and Overall Student Attitudes

Variable	with	Variable	Cross Prod. Dev.	Variance Covariace	p
Overall Attitude		9th Year Z Score	4.24	0.11	0.21

Table 42. -- Frequency Distribution Results for Teacher Perception About Students' Overall Reading Attitude

N=39

Variable	Frequency	Percent
Behavior Does Not Apply	7	18
Student Does Most of the Time	8	20.5
Student Does Sometime	18	46.1
Behavior Not Noticed Yet	6	15.4
Total	39	100

Mean=3.117 Standard Deviation=1.523 Standard Error=.246

The teacher observation questions were then clustered into three comparable attitudinal areas: the students' general attitudes about reading, the students' attitudes about school related reading, and the students' attitudes about recreational reading. A frequency distribution process was then conducted to obtain a mean score for each of the clustered attitudinal areas. Tables 43. through 45. illustrate the results and indicate that for teacher perceptions about the students' general attitudes toward reading the mean

score was 2.882 with a standard deviation of 1.743 and a standard error of .279. The mean score for teacher perceptions about students' attitudes towards school reading was 3.190 with a standard deviation of 1.367 and a standard error of .219. The mean score for teacher perceptions about students' attitudes towards recreational reading was 3.321 with a standard deviation of 1.844 and a standard error of .295.

The general overall attitudes of students was then compared with the perception of teachers based on the teacher observation attitude survey. A Pierson's Correlation Coefficient procedure was conducted to determine if there was a relationship between students' general attitudes and teacher perception about student attitudes. The results are presented in Table 46. and indicate that there is no significant relationship between student attitudes and teacher perceptions about student attitudes.

Table 43. -- Frequency Distribution of Teacher Perceptions of Student General Attitudes About Reading

N=39

Variable	Frequency	Percent
Behavior Does Not Apply	5	12.9
Student Does Most of the Time	10	25.6
Student Does Sometime	14	35.9
Behavior Not Noticed Yet	10	25.6
Total	39	100

Mean=2.882 Standard Deviation=1.743 Standard Error=.279

Table 44. -- Frequency Distribution Results for Teacher Perception on Student Attitudes Towards School Related Reading

N=39		
Variable	Frequency	Percent
Behavior Does Not Apply	9	23.1
Student Does Most of the Time	12	31
Student Does Sometime	13	33
Behavior Not Noticed Yet	5	12.9
Total	39	100
Mean=3.190	Standard Deviation=1.367	Standard Error=.219

Table 45. -- Frequency Distribution Results for Teacher Perception on Student Attitudes Towards Recreational Reading

N=39		
Variable	Frequency	Percent
Behavior Does Not Apply	11	28.0
Student Does Most of the Time	9	23.0
Student Does Sometime	12	31.0
Behavior Not Noticed Yet	7	18.0
Total	39	100
Mean=3.321	Standard Deviation=1.844	Standard Error=.295

Table 46. -- Pierson's Correlation Coefficient Results of Overall Student Attitude - Related to Teacher Perception of Overall Student Attitudes

Variable	with	Variable	Cross Prod. Dev.	Variance Covariace	p
Overall Student Attitude		Teacher Perception of Overall Attitude	6.764	.1780	.186

Four subsequent hypotheses were developed relative to other variables and student attitude. Hypothesis 3a. suggests that there will be no significant differences in attitudes between students who were retained in one grade after the intervention program treatment and students who were placed in the low and or average/high ability track in high school.

Since placement was considered a measure of the students' academic success, an ANOVA procedure was conducted using placement and the mean of the total reading attitude survey. In Table 47. the illustrated results show that there was no significant difference between student attitudes about reading relative to student placement.

Teacher perception of student attitudes was also considered in testing hypothesis 3a. An ANOVA procedure was conducted using the mean of the teacher perception of overall student attitudes and the students' high school placement. In Table 48. the results indicate that there was no significant difference in the mean scores of teacher perceptions of student attitudes relative to student placement.

Hypothesis 3b. proposes that there will be no significant differences in student attitude based on gender after the ninth year of the intervention program treatment. In order to test the hypothesis an ANOVA was conducted using the overall mean from the student attitude and sex. The results, as illustrated in Table 49,. show that there were no significant differences in student attitudes based on gender.

Table 47. -- Analysis of Variance Results for Overall Student Attitude on Reading and Placement

	Group 1 (Retained)		Group 2 (Low)		Group 3 (Avg/High)			
	N	X	N	X	N	X	f	p
9	8	3.02	12	3.11	19	3.42	2.228	.122

Table 48. -- Analysis of Variance Results for Teacher Perception of Student General Attitudes and Placement

	Group 1 (Retained)		Group 2 (Low)		Group 3 (Avg/High)			
	N	X	N	X	N	X	f	p
N=39								
9	8	2.50	12	3.47	19	2.67	1.003	0.38

Table 49. -- Analysis of Variance Results for Students' Overall Attitudes by Gender

	Group 1 (Male)		Group 2 (Female)			
	N	X	N	X	f	p
9	26	3.26	13	3.21	.094	.761

In Hypothesis 3c. the variables to be considered included support services and student attitude. This hypothesis was tested to determine if there would be any significant differences in student attitude after the ninth year of the intervention program treatment based on whether students did or did not receive support services. An ANOVA procedure conducted with support services and general student attitude as variables. The results of the analysis are reported in Table 50. which indicates that there were no significant differences in student attitudes relative receiving or support services.

The number of years of program participation form the basis for Hypothesis 3. The hypothesis proposes that there will be no significant differences in student attitude after the ninth year of the initial intervention program treatment between students who receive one year of intervention and students who received more than one year.

An ANOVA procedure was conducted to test the hypothesis using the number of program years and the general student attitude mean score. The results are reported in Table 51. and show that there was no significant difference in student attitude between

students who had received intervention program treatment for one year versus those who had received more than one year of the the intervention program treatment.

An ANOVA was also conducted to determine if there was a significant difference in student attitudes between students who did not return to the program and those who did. The results are illustrated in Table 52. and show that there was no significant difference in student attitude based on returning to the program.

The final component of the data analysis is related to the student interviews conducted with 19 of the 39 (49%) students in the sample population after the ninth year

Table 50. -- Analysis of Variance Results for Student Overall Ability by Support Services

	Group 1 (No Support)		Group 2 (Support)			
	N	X	N	X	f	p
K	24	3.24	15	3.25	0.007	.934

Table 51. -- Analysis of Variance Results for Student Overall Attitudes by Program Year

	Group 1 (1 year)		Group 2 (more than 1 year)			
	N	X	N	X	f	p
9	21	3.26	18	3.23	.034	.855

Table 52. -- Analysis of Variance Results for Overall Student Attitudes by Recivity

	Group 1		Group 2			
	N	$\overline{X}$	N	$\overline{X}$	f	p
N=9						
9	17	3.31	21	3.17	.649	.426

of the intervention program treatment. Using a qualitative discriminate sampling technique 129, students responded to six questions generating additional information regarding their attitudes about reading. By design, their responses were not analyzed using any statistical procedure. The responses were intended to substantiate the analysis of student attitudes as presented through the student attitude survey and the teacher observation checklist data.

Using a selective coding process the student responses were clustered into three categories; general attitudes about reading, attitude about school related reading, and attitude about recreational reading. Diagram 1 provides abbreviated student responses in the three general categories for students who were retained after one year of the intervention program treatment. Diagram 2 describes responses for those students who were in the below average track, and Diagram 3 describes responses for sample students in the average/above average track.

The the relationship and interaction of these three instruments will be discussed in the summary and discussion of the findings section of Chapter 5.

Diagram 1

Student Interview Comments

Retained Students

High Positive	High Negative
• Yeah, newspapers/temp/sports. (R) • Ask mom - try to figure it out. (S) • No. (R) • Yeah - just for myself books. (R) • Yeah - most of the time. (G) • Go back and do it if I can't get it. (S) • Skip and combe back or tell teachers. (S) • No, not reading. (G) • No, not reading.(R) • Yeah, I like to read at home to get better. (R) • Yes, I get some good graes on book reports and learn how to pronounce words.(G) • When I have nothing to do I might read. (S) • Reading's easy. (G) • I try to figure it out or ask a grown up. (S) • Romances and mysteries. (G) • Yeah, at home when there's nothing better to do. (R) • Ask my dod, sister, mom teacher. (S) • Science fiction, history. (G) • Yeah, I like books. (R) • Yes, I do - I can read well.(G) • I can visualize. (S)	• Go on, skip hard words. (S) • Yes (R) • Read over hard words I can't pronounce. (S) • Most of the time, but I read real slow. (G) • When I'm not interested it slows me down. (S) • Hard history and science. (R)
Low Positive	**Low Negative**
• Sort of, can't read hard things. (G) • Magazines. (G) • Once in a while I get bored. (R)	• No, I have trouble with some words. (G) • Spelling weakners. (S) • Don't know much about fun reading. (G) • Hate adventurers and biographies. (R)

LEGEND

Questions: (1) Do you think of yourself as a good reader? (2) What are your strengths and weaknesses? (3) What do you do when you don't understand what you read? (4) Are there any subjects you particularly like to read? (5) Are there anything you don't like to read? (6) Do you do any reading other than for school assignments?

Grouping: (1) G = General (2) S = School Related (3) R = Recreational

Diagram 2

Student Interview Comments

Average/High Placed Students

High Positive	High Negative
• I study with my sister and I can ask her or my mom for help. (S) • I like math, mysteries, poems, comedies, and the stumm in my child care book. (R) • I read the newspaper - crimes, weather, comics, and Teen Week magazine. (R) • Yeah, I could read and find out things I know and look in the dictionary for what I don't know. (G) • Try to understand it myself, but ask for help if I can't. (S) • I like to read sports, world news on the front page of the Tribune. (G) • Yes, I read sports magazines and Readers' Digest, and World Book activities (R) • Yes, I like to read a lot. It runs in the family. It lets you get a library card. • I don't think I have any reading weaknesses. I'll give any book a chance. (S) • I ask for help if I don't know the word or what I'm reading. (S) • I kind of like to read almost anything. (G) • I'm a writer so there's nothing I don't like to read about. (R) • I read all the time. Sometimes I have a book for a subject and one on the side. (R) • I think of myself as a pretty good reader. In my own opinion, I'm average - above average. • I ask for help, but it also depends on the type of reading.(S) • Probably fantasies, I actually collect comics. (G) • Sure, I'm not, but I can keep up with everyone else. (G) • I usually read it over or ask somebody. (S) • Yeah, comedy outside of school. (G) • Yes, my mom likes to help me that's why - reading interesting newspaper articles or sports. (R) • Yes, I read pretty good. I don't have any problem reading. (G) • Ask my teacher or try to understand the words around it. • I like to read about tragedies. (G) • I like to read mysteries and the newspaper to find out what's going on in the world - it gives me something to do. (R)	• I guess - if I read at a certain pace.(G) • If I'm in a good mood I like to read, but in a bad mood I can't concentrate. • If it's something I don't like., I won't read it - like in English: To Kill a Mockingbird. • The kind of literature presented determines if I will understand the content. (S) • I find reading about politics and governement, science and science textbooks is boring. (R) • I can read books if there are no new words. (S) • History texts are kind of boring (R) • I have trouble with some of the meanings. (S) • I don't like to read about history or science because they are boring. (R)
Low Positive	**Low Negative**
• Vocabulary is a weakness, but I look up words in the dictionary. Sometimes I have trouble with pronounciation. (S)	• I don't like science or history which has all these pages and is boring (R) • I don't read much - maybe comics. (R)

LEGEND

Questions: (1) Do you think of yourself as a good reader? (2) What are your strengths and weaknesses? (3) What do you do when you don't understand what you read? (4) Are there any subjects you particularly like to read? (5) Are there anything you don't like to read? (6) Do you do any reading other than for school assignments?

Grouping: (1) G = General (2) S = School Related (3) R = Recreational

Diagram 3

Student Interview Comments

Low Ability Placed Students

High Positive	High Negative
• Yes, I can read. (G) • I like to read mysteries and romances. (G) • I try to get help from someone who does understand it or keep reading it over and over. (S) • I like fiction, fantasy, mysteries, and good books in English like The Oddessey and The Western Front. (G) • I haven't read a book I didn't like. If it didn't look good, I just kept reading to see if it would get interesting. (R) • Yes, when I read I can understand the words. (G) • I can read at a good enough pace and understand what I'm reading. (S) • I ask the teacher or family members for help. (S) • Yes, I think I can read real good and understand what I rea. • I like history and especially English because we get to read lots of novels. • Yes, I read a lot at home because it can help me alot. (R) • I can read some hard words. (R) • I ask the techer for help or I keep trying and never give up. (S) • I like to read sports - football, baseball - English and history. (G) • No, there's nothing I don't like to read about. (R) • Yeah, around the house I read Time, Newsweek, and the paper. (R) • Yes, I think of myself as a pretty good reader. I read two or three books a week. (G) • I usually ask for help, try to understand or use the dictionary. (S) • I like to read basketball, sports, and sometimes math. (G) • No, but new science is really hard. (R) • Yes, I read sport books, comics, mysteries, and sometimes the newspaper. (R) • I like to read sports. (G) • Yeah, because sometimes it's more fun and interesting than school reading, like the newspaper and what happened with people getting killed. (R)	• No, boring stuff. I don't like to read about cars. (R) • I'm an okay reader. I read two books every month. • My reading weakness is comprehension. (S) • Yeah, in some way, I try to concentrate on the words. (G) • I like to learn poetry but I don't like to read it. (R)
Low Positive	**Low Negative**
• I practice in my mind what is going on. (S) • Sometimes in my free time if I don't have anything else to do. (R)	• I don't like to read - I only do it if I have to. Reading to myself is a weakness. (S) • I read on even if I realize I don't understand what I'm reading. (S) • I don't like to read boring subjects. Most everything is boring.(S) • No, I don't like to read. Reading is a waste of time. (R) • Reading is hard, trying to sound out the words and put it back together. (S) • I try to keep on reading to understand it but sometimes I just give up. (S)

LEGEND

Questions: (1) Do you think of yourself as a good reader? (2) What are your strengths and weaknesses? (3) What do you do when you don't understand what you read? (4) Are there any subjects you particularly like to read? (5) Are there anything you don't like to read? (6) Do you do any reading other than for school assignments?

Grouping: (1) G = General (2) S = School Related (3) R = Recreational

CHAPTER 5

DISCUSSION AND CONCLUSIONS

Introduction

The magnitude of this project was directly related to the amount of data that was collected reflecting a period of nine years and an attempt to cover both breadth and depth in determining if the process of early reading intervention impacted student achievement, academic success and/or student attitude. Chapter 5 will present a summary and discussion of the findings relative to the data analysis, interpretations, and conclusions based on the evidence presented and recommendations for future study.

Summary And Discussion Of Findings

The data collected and analyzed in the group profile provided information regarding a group of African-American students who were initially identified as students potentially "at risk for academic failure" at the conclusion of their kindergarten year. The original number of students identified and enrolled in the program at first grade was

seventy-eight. Forty three students were finally identified for the project because these students remained in the school district and continued on to the local high school . Four students were eliminated from the study because they were identified as special education students during or after the intervention treatment program was initiated at first grade. Achievement data was not always available for these students . The total number of students in the sample population for which data was analyzed was thirty-nine, which represented 50 percent of the initial identified population. Because of the location of the district, an urban/suburban community, it was important to collect and analyze data relative to the environment that may have contributed to these students being identified for early reading intervention beginning in first grade.

First, gender was examined to determine if the pattern of African-American males which is typical of academic intervention programs existed in the sample population. The data revealed that the number of males in the sample were twice the number of females and represented two thirds of the population under study. This configuration continues to support a general premise that African-American males generally begin school at a disadvantage relative to some academic areas such as reading. Sociological arguments continue regarding the reasons for this phenomena.

The socioeconomic status of the individual students and the total group was examined. This variable has often been linked to why students are at risk for academic failure, in that the home environment does not provide the resources linked with school readiness activities and support. In many programs like Chapter I, the socioeconomic status of the student is one of the basic criteria for identification and participation. The sample population of this project did not fall into that category because approximately

80 percent of the students were not identified as low income. Therefore, the expectations for these students would be one of potential success.

The structure of the family is another sociological issue that educators pose as a possible influence on student achievement. There is a general belief, held by some, that students from single parent homes may not receive the support necessary to promote achievement. In considering this general perception, the sample population family structure was examined and the results indicated that although the marital status of a number of the parents included those who never married, divorcees and widows, 44 percent of the students resided with two parents and, therefore, could have had the supportive environment in question.

The amount of preschool experience a child has before formal schooling is another factor that is considered a predictor of potential success. Many programs such as Headstart are based on the premise that preschool education can provide the readiness experiences children need for success in school . The group profile data shows that 87 percent of the students attended preschool and 91 percent attended for at least one year. Therefore, it would be expected that these students would be less likely to be identified as potentially at risk for academic failure. It is important to note that the type and quality of the preschool experience was not identified and may provide an explanation of the variances in success rates of students who attend preschool programs.

Maturity has certainly been an issue in the state of Illinois relative to school attendance. In legislation passed in 1985, the eligible age for entrance into kindergarten was rolled back from the fifth birthday by December 31, to the fifth birthday by September 1 as the criteria. The students in the sample population were not a part of the

later legislation and data regarding the participants age at the time of kindergarten entrance was considered as a variable. The sample students had a larger proportion of students who might be considered less chronologically mature (64 percent) because they were born in the latter portion of 1977 compared with students born in the later part of 1976 and early months of 1977. It would be expected that immaturity could be a factor in whether or not these students would be successful in school. However, chronological birth dates may not be an accurate measure of maturity when other elements of the home environment are considered. The data revealed that while there was a significant difference in scores for older students in grade one, that difference was no longer significant at grade three and in subsequent years.

Sibling birth order has also been questioned as a factor in student success considering the sociological issues relative to the oldest, middle, younger, or only child syndrome. Elements of this family structure may impact the amount of support the student receives, the opportunities to have role models, or the amount of attention given to the student. In the sample population, the group profile reveals that 38.5 percent of the students are middle children as compared with 30.8 percent who are the oldest, 20.5 percent who are the youngest, and 10.3 percent who are only children. What was important to note was that within the largest portion of students (middle child) no delineation was made to further rank order the child in the middle, i.e., was the child one of three or more than three other children in the family. However, it is equally important to recognize the small number of students who were the only child in the family (10.3 percent) and that the bulk of the student sample (61 percent) had siblings .

The school district involved in the study contained ten elementary schools from where the sample population was drawn. The data analysis shows that small numbers are representative of nine of the elementary schools. One school did not have students in the sample. It could not be determined whether this was an element of successful teaching at the kindergarten level or the attrition process which eliminated a number of students who were in the group receiving the program intervention treatment. The analysis of the data shows that while the numbers of sample students per school were small, a number of students (38 percent) transferred within the district after receiving the early intervention program treatment in first grade. Although each elementary school offered the program, the migration of students from one school setting to another has implications relative to the consistency of programming for other schooling activities, such as grade level configurations, staff, etc.

In addition, the district contains four middle schools, three of which serve as receivers of the feeder elementary schools that the samples students attended. One of the middle schools is actually a kindergarten through eighth grade building and was the only elementary building were no students were a part of the sample population. The sample students were fairly evenly distributed among the three middle schools; therefore, the issue of the impact of the school program was negated.

The support services provided by the district in the areas of supplementary reading via Chapter I, speech and language assistance, learning disabilities resources, social/psychological assistance, and English as a second language for Caribbean students, provides students with additional help in both instructional and behavioral areas. However, the data indicates that only small numbers of the sample population

received any individual service. Collectively, 38.5 percent received some support and 61.5 percent received no support at all. The impact of additional measures to improve the students' success potential could have influenced student achievement and therefore was tested.

Teaching all children to read is one of the goals of any elementary educational program. However, how students fair and perform at the high school level has been viewed as one of the significant milestones in a students academic career. Student placement in high school courses has been a debated topic in the field of education for many decades. Currently issues relative to tracking versus non-tracking have assumed a pivotal roll in the restructuring of schools. The elementary school district does not track students into ability level groups across all subject areas although students may be regroupsed for reading and math instruction. The high school, however, does track students into low, regular, and honors courses. Students who generally fall in one track seldom move into a higher track for the major subject areas. The group profile information indicates that most of the students in the sample population proceeded to the high school eight years after the initiation of the early reading intervention program treatment. However, 20.5 percent of the sample students were retained in the middle schools and were currently classified as eighth grade students. These students are chronologically at least one year ahead of their classmates and a year behind the remaining portion of sample students.

The high school program does place students in ability leveled classes for the major subject areas, including Reading/English. All incoming ninth graders were tested in reading to determine if additional instruction in reading should be included in their

daily schedules. The reading activity was conducted as a class component of the school's advisory program and the student did receive a grade. At the conclusion of one semester, students in reading were re-tested to determine if they should be placed out of reading for the final semester. This information was important because the sample students who attended the high school were tested and their placement in reading and their level of placement in English courses were in part based on the result of their test scores. The program criteria for additional reading is based on the student scoring better than the 50th percentile on the instrument used. This criteria is different than the success criteria used at the elementary level where the student is deemed capable of working at grade level if achievement test scores are at least at stanine 4 which ranges from the 23d to 40th percentile. Therefore, the high school expectations for reading success may be higher than the measure of success used in the elementary district. The DRP measures the student's ability to comprehend prose which is unlike the C.A.T., which measures discrete reading skills in vocabulary, structural analysis, and general comprehension. In the sample population, 30.8 percent of the students were enrolled in the lower ability track in English courses and were also assigned to a reading class. However, 43.5 percent were placed in the regular track, and 5.1percent of the sample students were placed in the honors track. This data indicates that 79.5 percent of the students who were initially identified as "at risk for reading failure" successfully completed the elementary school program and 48.7 percent of the students were doing average or better work.

Although the sample population contained a substantial number of males, the success rate based on student matriculation to the high school and course level placement

is relatively high. In summary, the group profile presents a picture contrary to the norm for students at risk for failure. Forty-nine percent of the African-American students with limited ability, possessing few if any of the characteristics most often associated with being "at risk for failure" succeeded in reading at average or above average levels.

The sample population did receive early attention through identification and follow up via early reading intervention program treatment. The project, therefore, focused on the impact of the intervention, over time, on student achievement, academic success, and student attitude. Hypothesis 1 stated in the null form tested for the sustained effects of the early reading intervention program in alternate years using a paired t-test on stanine scores and found that positive results were only evident between kindergarten and the third year . Because stanine scores were not considered a discrete measure of achievement standard scores were computed and a repeated measures statistical procedure in the form of a Multivariate Analysis of Variance was used to determine if there were significant differences between the standard scores over time. The null hypothesis is accepted because no differences overall could be found, although the kindergarten to third year stanines scores is an indicator that some change did occur at that level. Additionally, growth in stanine scores was erratic but continued to serve as the criterion for program consideration. The relationship between the stanine scores and the standard scores could not be validated because of the nature of the districts' testing program.

The subsequent minor null hypotheses were related to the differences that might occur within the sample population relative to the factors described in the group profile. In relationship to birth maturity, null Hypothesis 1a. was accepted although a trend was

noted after the first year of treatment. This trend indicated that students who were more chronologically mature did slightly better than their younger counterparts. However, this trend was not maintained in subsequent years and indicates that at the time of this intervention chronological birth maturity had no impact on student success.

Hypothesis 1b., relative to who the number of parents the student resided with and Hypothesis 1c., relative to student birth order, are accepted because no significant differences were noted between the groups for any of the statistical procedures used.

The data presented for Hypothesis 1d. also does not demonstrate any significant differences in groups based on the number of schools attended. However, a trend was identified at kindergarten, which indicated that the students who attended more than one school did slightly better than those attending only one school. Although further analysis was not conducted, it appears that these students may have lost any advantage they had after kindergarten because no significant differences are noted during any other years following the program intervention treatment.

Hypothesis 1e. (gender) and Hypothesis 1f. (support services), were accepted because no differences were noted in each category for either group. This would indicate that the female students did not out perform the male students although they were disproportionately represented in the sample.

Hypothesis 1g. relative to the number of years of program participation and the rate of return to the program were also accepted for most years tested. However, after the first year of the program a statistically significant difference was noted when stanine data was used, and significance was noted after the fifth year relative to returning to the

program. Utilization of the standard scores to validate these results indicate that no significant differences were noted for each hypothesis for all the years analyzed.

The second primary null hypothesis addressed the issue of the intervention and its impact on academic success utilizing student academic grades and placement data. In gathering, reviewing, and analyzing the data, it was apparent that subjective grades seemed to have limited impact as predictors of success. However, they were used in combination with student placement as measures of success in analyzing the relationships of the different variables. Initially, the data was analyzed to determine if there were significant differences between the reading grades and student placement. The analysis results indicate that for the earlier years of kindergarten, first, and third, no significant differences were noted. However, the picture changes for the later years where differences were noted for the fifth, seventh, and ninth years, and the level of significance increased with each subsequent year. Additional testing was conducted to validate the results using a canonical discriminant analysis procedure. Standard discriminate function coefficients indicated that pooled- within -group correlations in function 1 were most prevalent for reading grades after the ninth year, and for function 2 for the seventh, fifth, third, and first grade years as ordered by the size of the correlation within the function. Therefore , the null hypothesis is rejected to the extent that placement and reading grades have significant differences and some correlation with student placement which appears strongest at the ninth year, followed by the seventh and fifth years as presented in the Analysis of Variance results.

The minor null hypotheses related to the subject of academic success in reading examined the additional variables discussed. Hypotheses 2a. relative to birth maturity,

Hypothesis 2b. on number of parents for residency, Hypothesis 2c. relative to student birth order, Hypothesis 2d. relative to the number of schools attended, Hypothesis 2e. relative to gender, and Hypothesis 2g. relative to the number of program years, are all accepted because no significant differences were noted between the groups in any of the categories include. Hypothesis 2f. relative to support services did report significant differences between groups who received support services versus those who did not relative to student placement at the .008 level. The students who did not receive support had a mean score of 2.54 versus the students who received support with a mean of 1.87. These results appear to indicate that the students who did not receive support did much better in terms of placement than their supported counterpart.

The final research question was related to student attitude and utilized qualitative information to research null Hypothesis 3 which focused on the impact of the program intervention treatment and student attitudes about reading. The twenty-five question attitude survey was analyzed by composite scores and yielded a mean of 3.32. On the Likert scale used in the survey this mean places the responses at the mid-range of the survey which essentially says that students were undecided about their attitudes towards reading. The questions were then clustered into three specific components: general attitudes about reading, attitudes about school related reading, and attitudes about recreation al reading. Although general attitudes generated a slightly higher mean score, the ranges continued to fall in the undecided category. The results of a statistical analysis of this survey did not yield data that would comprise easy comparisons.

A Pierson's Product Correlation Coefficient analysis was conducted to determine if there was any relationship between student placement and student achievement. No significant differences were generated as related to the survey instruments..

To verify student attitude relationships , data on teacher perception of student attitudes was also analyzed with similar results. The mean of the composite teacher responses was 3.11 which on the instrument scale indicates that most of the time students had positive attitudes towards reading based on teacher observation and perceptions. The results for the two of the three attitudes, school related and recreational reading, were similar. The results for general attitudes differed slightly with a mean of 2.88 which placed their observations somewhere between the student exhibiting the behaviors some of the time to most of the time.

A correlation analysis was conducted to determine the relationship between the student attitudes and teacher perceptions and yielded no significant relationship between the two. Therefore, the null hypothesis is accepted that the intervention program treatment had no sustained impact or influence on student attitudes or teacher perception of student attitudes.

The minor null hypotheses related to reading attitude considered a number of the variables previously identified. Hypothesis 3a. relative to student placement, Hypothesis 3b. relative to gender, Hypothesis 3c. relative to support services, and Hypothesis 3d. relative to the number of program services all yielded no significant differences when tested with student and teacher attitudes. Therefore, the null hypothesis statements for each of these variables is accepted.

The final analysis completed was a qualitative review of interview questions answered by a sample portion of the population. The student comment chart seemed to be the most revealing regarding student attitudes about reading. When clustered into general reading, school related reading,and recreational reading, the vast majority of students were positive and enthusiastic regardless of their placement, the grades they received, or the observations of their teachers. Their interview responses appeared to more closely match teacher perceptions than the results of the student survey. While this may not be contributive to the intervention program treatment, these students for the most part perceived themselves as good readers, with positive reading strategies, and good reading habits.

Interpretations And Conclusions

The amount of data and the number of variables made it difficult to sort through the issues presented. The statistical analysis supports a good deal of the research reviewed in Chapter 2 of the study relative to monitoring long term affects over time which in essence states that if treatment is discontinued statistically significant effects are varied depending on the type of program, the nature of the monitoring instruments, and other controlling variables. However, the number of students in the average or the honors track cannot be overlooked and suggests that additional instruments should be considered and that a controlled process for monitoring student progress over time should be established at the onset of program implementation. Standardized test scores may not be the most accurate predictor of student achievement and student success and

may need to be considered as one element of a total package of student data that should be maintained, recorded, reviewed and analyzed .

The relationship of home factors to achievement and success may be less important than we believe and may need to be reviewed yet again and discarded if they only serve as an excuse for why students who have been targeted for special support have not met our expectations.

Although the process of early intervention and its sustained impact on student achievement, success, and attitudes was not statistically proven as interwoven variables in this project, it is a natural tendency to test the nature of these relationships over and over again. Annually the local, state, and federal governments pour millions of dollars and resources into identifying and assisting students who we feel are "at risk" for academic achievement and success. If the programs and strategies we are providing are not working, we should restructure our models and continue to monitor them over the long term which is where ultimately our success rate should be measured.

It is important to be concerned with Type I and Type II research errors and to review yet again the quality of the data collection and the procedures applied for analyzing this data. For example, it can be concluded that academic grades for elementary students may be based on totally subjective criteria which varies from teacher to teacher and from school to school.

While the standardized test data was computerized, the variance between test editions and the high school reading test had to also be considered as influencing factors beyond the control of the researcher. Also taken into consideration is the comparison of

the various scoring techniques from stanine to percentile, raw, and scale score to converted scores. It is interesting to note that significance was not demonstrated when converting raw scores to scale scores which is a more discrete measure. Yet, for the purpose of the local school district, growth in stanines as illustrated in Graph 1 is noted regardless of the test edition and this growth is sustained and increased across the elementary school years. Although the number of students in the lower stanines increased by the ninth year, the change in the standardized test at the high school allows for students to score in the high areas regardless of placement. This phenomena was not demonstrated in the elementary grades.

The student attitude survey as a paper and pencil measure did not yield the same results as direct interaction with the students. Students were much more enthusiastic about the subject of reading than one would expect them to be based on the statistical analysis. Yet there were very little differences between the reactions of those students who were retained and those who were placed in the honors track.

The relationship between teacher perceptions of student attitudes and the student's perception based on the written survey were inconclusive. However, using the qualitative process of triangulation, which enables one to compare multiple sources, it is revealed that students were more positive than demonstrated by the survey instruments.

While significant differences were not noted in discrete measures, gross measures indicate that change did occur. Although there were fluctuations and variations, students in the sample population continued to achieve over time. If growth expectations are predictors of success, these students should have remained at a constant level or fallen

further behind. The data analysis indicates that this is not the case. In fact, a small percentage of students exceeded expectations when placed in honors courses. This information supports Elfreida Hiebert's notions that comparisons of mean effects of standardized scores as the determinants of the effectiveness of intervention needs to be reexamined.

Also of significance is the role of sociological and environmental factors play in student achievement, success, and attitude. The data indicates that those factors typically associated with "at risk" students overall did not impact student progres..

In light of this information, educators need to examine issues such as those presented by Reginald Clark. Clark contends that "sucess in school is not predicted or explained by a student's social background. Social background has, however, clearly shown a moderate correlation to school achievement... Achievement is best understood as the result of interpersonal communication in everyday life... Studies have shown that disadvantaged youngsters have positive attitudes about themselves and about academic achievement. Yet, they do not engage in the work that it takes to ensure the outcome of high achievement."[128]

In conclusion, the project highlights the issue of monitoring our progress as educators for programs we believe help students. The variables reviewed may or may not impact achievement and success but a constant review of the issues is critical.

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[128] Reginald Clark, "Why disadvantaged Students Succeed: What Happens Outside School is Critical," Public Welfare, Spring 1990, 17-23.

Recommendations For Future Study

The issues related to the process involved in early intervention in reading programs should become the focal point of future studies. Programs, when researched in isolation, may yield the results we desire to see over the short term, but make no significant difference over time. Future study should focus on the process that is the how are students being assisted, rather than the what or the specific program. If the process is not effective, then the nature of the program begins at a deficit.

A follow up study should be conducted to see how the sample population students proceed through their educational careers (i.e., how many will go on to college or seek other technical training which will require sophisticated reading skills). As a researcher, I would follow Reginald Clark's example and narrow the focus and follow those students who were retained and in the lower ability track in a separate project. For the students who were in the average and honors ability group I would use a more qualitative approach to determine what home factors may have contributed to their status, what factors the students feel have contributed to their school achievement and success; I would utilize that input to restructure or create a model of intervention that would assist the 51 percent of the students who did not do as well.

Finally a continued review of intervention as a process and strategy should be researched in a more in-depth manner if it is to continue to be the model schools provide. If more data can be gathered to support intervention as a viable process, the focus can shift to what form the intervention strategy should take. The Chapter 2 literature review

highlighted a few examples where pull-o programs were no longer the model but intervention continued to be considered a viable solution to providing students with extra support at an early age to improve chances of success. The results of this project did not proved disheartening , it only substantiated the need for more research on this process.

As a nation, we need to follow the example of innovative educators and examine the new ways of thinking about, promoting, and measuring literacy and reading. Whether we are concerned with "critical literacy as the conception of reading and writing as a high level competency in using language as a tool to solve problems and to communicate"[129] as described by Calfee; or occupation literacy, "the ability to competently read required, work-related materials"[130]; attention must be paid to the students and learners of today who are our leaders of tomorrow. "Literacy is every child's right"[131] and requires special attention when we acknowledge the full range of diverse learning and literacy needs.

In the decade following the Nation At Risk Report, Terrel H. Bell, former secretary of Education, describes the reform process as "a splendid misery for American Education."[132] He contends, and I agree, that although progress has been made, our nation is still at risk despite the technical ingenuity that we possess. WE must continue to set high standards and expectations for all students and support their right to literacy and a solid foundation in reading. We must continue to review our efforts over the long term. The results of this project did not prove disheartening; they only substantiate the need for

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[129] R. Calfee, What Schools Can Do to Improve Literacy Instruction, San Francisco: Josey-Bass, 1991.

[130] R.T. Rush, A. J. Moe, and R. L. Storlie, Occupational Literacy Education, Newark, Delaware: Interational Reading Association, 1991.

[131] A. McGill-Franzen and R. L. Allington, "Every Child's Right: Literacy," The Reading Teacher, 1991, Vol. 45, 86-90.

[132] Terrel H. Bell, "Reflections one Decade After A Nation At Risk," Phi Delta Kappan, April 1993, 592-597.

more research related to reading and literacy and the need to insure success for all students.

BIBLIOGRAPHY

"1991 Illinois Reading Sample: Illinois Goal Assessment Program, Grade 11", Department of School Improvement Services, Illinois State Board of Education, 1991, pg. 16.

Adams, Marilyn Jager. Beginning To Read: Learning and Thinking About Print. Champaign-Urbana, Illinois: Center for the Study of Reading, The Reading and Research Center, 1990.

Aiken, Lewis. "Attitude Measurement and Research," New Directions for Testing and Measurement. No. 7, 1980:1-12.

Allington, Richard and Anne McGill-Franzen, "School Response to Reading Failure: Instruction for Chapter I and Special Education n Grades Two, Four, and Eight," The Elementary School Journal. May 1989, vol. 89, No. 5: 530-542.

Allington, Richard, et. al. "What is Remedial Reading? A Descriptive Study." Educational Research Service, 1985.

Amick, Daniel and Herbert J. Walberg. Introductory Multivariate Analysis, Berkeley, California: McCutchan Publishing Company, 1975.

Amorose, Richard, et. al., "Analysis of School District Records to Study the Effectiveness of Chapter I Programs and to Conduct a Longitudinal Study of Students Involved in Chapter I Programs Over a Five Year Period: A Final Report." Columbus, Ohio: Columbus Public Schools Department of Evaluation, September 1986.

Anderson, Richard C. and Others. Becoming A Nation Of Readers: The Report of the Commission on Reading. Washington, D.C.: The National Institute of Education, United States Department of Education, 1984.

Asher, J. William. Educational Research and Evaluation Methods. Boston: Little, Brown and Company, 1976, 146, 340-341.

Bailey, Janis and Brazee, Phyllis E. and others, "Problem Solving Our Way to Alternative Evaluation Procedures", Language Arts, vol.65, number 4, April 1988, pgs 364-374.

Baulmuth, M. The Roots of Phonics. New York: Teachers College Press, 1982.

Bell, Terrel H., "Reflections One Decade After A Nation At Risk," Phi Delta Kappan, (April 1993): 592-597.

Boehnlein, Mary. "Reading Intervention For High Risk First Grader," Educational Leadership, March 1987, 32-37.

Borg, Walter R., Applying Educational Research: A Pratical Guide For Teachers, Longman Inc.,New York, 1981

Brown, JoAnn. "Chapter I Program Improvement: View from the Grassroots," The Delta Kappa Gamma Bulletin, Fall 1991, 23-30.

Brown, Roger. "Report of the Chapter I Sustained Effects Study." Columbus, Ohio: Columbus Public Schools Department of Evaluation, July 1987.

Calfee, R. What Schools Can Do to Improve Literacy Instruction, San Francisco: Josey-Bass, 1991.

"California Achievement Tests Form C and D Technical Report", McGraw Hill, Monterey, California, 1981.

Carter, Launor F. "A Study of Compensatory and Elementary Education: The Sustaining Effects Study." Washington, D.C.: United States Department of Education, Department of Program Evaluation, 1983.

Chall, Jeanne S. Learning To Read: The Great Debate. New York: McGraw Hill, 1967, 16.

Clark, Reginald, "Why Disadvantaged Students Succeed: What Happens Outside School Is Critical," Public Welfare, (Spring 1990): 17-23.

Claus, Richard and Barry Quimper. "Long Term Continuous and Sustained Effects on Chapter I Participants 1983-85 Evaluation Report." Saginaw, Michigan: Saginaw Public School Department of Evaluation, August 1987.

Clay, Marie. The Early Detection of Reading Difficulties, third edition. Portsmouth, New Hampshire: Heinemann, 1979, 3.

Davidoff, Stephen and Ellery Pierson. "A Continued Look at the Promise of Schoolwide Projects," Philadelphia, Pennsylvania: Philadelphia Office of Research and Evaluation, April 1991.

Davidoff, Stephen H. "Sustained Effects: Measuring the Impact of Chapter I Over Time, 1986-1988." Philadelphia, Pennsylvania: Philadelphia Office of Research and Evaluation, November 1988.

"Degrees of Reading Power", Touchstone Applied Science Associates, 1988.

Estes, Thomas. "A Scale to Measure Attitudes Toward Reading," Journal of Reading, November 1991, 138.

Foley, Christie L. "Four Longitudinal Studies of the Starter Approach: A Beginning Reader Strategy for Nonreaders." Paper Presented at the Annual International Reading Association, Anaheim, California, May 1987.

Gagne, R. M. and L. J. Briggs. Principles of Instructional Design. Holt, Rinehart, and Winston, 1974.

Good, Carter V., editor. Dictionary of Education. New York: McGraw-Hill Book Company, 1973.

Harcham, Laura D. and others. "Longitudinal Effects of I.T.A. on Pupil's Reading Achievement in Grades One Through Four Using Kindergarten Measures," Reading Research Quarterly, ED 045327, February 1971.

Hays, William L. Statistics. Holt, Rinehart, and Winston, 1988.

Heibert, Elfredia. Getting Reading Right From the Start. Colorado: University of Bolder Colorado, 1992.

Hillerich, Robert L. "First Graders' Perceptions of Reading and Writing," Illinois Reading Council Journal 18, (Spring 1990): 12-18.

Huck, Schuyler W., and W. Cormier and W., Reading Statistics and Research. Harper and Row, 1974.

Illinois State Board of Education. "Statistics From the National Chapter I Assessment Report," Springfield, Illinois: Office of Planning Research and Evaluation, 1990, F3 & F5.

Johns, Jerry L., "Literacy Portfolios: A Primer", Illinois Reading Council Journal, Illinois Reading Council, Bloomington, vol. 19, number 3, Summer 1991, pgs.4-10.

Kennedy, Mary M. And Others. The Effectiveness of Chapter I Services. Second Interim Report from the National Assessment of Chapter I. Washington, D.C.: Office of Educational Research and Improvement, July 1986, 1 (abstract).

Kennedy, Larry and Halinski, Ronald, "Measuring Attitudes: An Extra Dimension," Journal of Reading, April 1975.

Kennedy, Mary L. "The Effectiveness of Chapter I Services: A Second Interim Report From the National Assessment of Chapter I." Washington D.C: Office of Educational Research Improvement, 1986, 12.

Killian, Lawrence J, and Edward Kagen. "The Long Term Effects of the EESA Title I Reading Program on Reading Achievement." Paper Presented at the American Educational Research Association, Los Angles California, 1981.

Koffler, Stephen. "An Analysis of ESEA Title I Data in New Jersey." New Jersey State Department of Education, 1976.

Lloyd, D.N. "Prediction of School Failure From Third Grade Data," Educational and Psychological Measures, No. 38, (1978): 1,193-1,200.

Lyons, Carol. "Reading Recovery: An Early Intervention Program That Can Prevent Mislabeling Children as Learning Disabled," ERS Spectrum, vol. 7, No. 4 (Fall 1987): 3-9.

Lyons, Carol A. "Patterns of Oral Reading Behavior in Learning Disabled Students in Reading Recovery: Is a Child's Learning Disability Environmentally Produced?" Educational Research Service, 1988.

May, Carolyn S., and Jacqueline L. Farha. "A Longitudinal Study of the Chapter I Pre-kindergarten Program in the Witchta Public Schools." Kansas, Paper Presented at Annual Meeting of the American Educational Research Association, San Francisco, California, March 1989.

McDaniel, Augustine. "The Long Term Effects of the Pupil Progression Policy on Academic Achievement," Educational Research Association, (April 1986): 16-20.

McGill-Franzen, A. and R. L. Allington, "Every Child's Right: Literacy," The Reading Teacher, vol. 45: 86-90.

Meyer, Linda. "Long Term Academic Affect of Direct Instruction Follow Through Technical Report Number 299." Washington, D.C.: National Institute of Education, November 1983.

Morris, Darrell. "Project Prevent: A Model of Early Intervention For High Risk First Grade Readers." Educational Research Service, 1990.

Nagel, Thomas. "A Longitudinal Study of Systematic Efforts to Raise Standardized Achievement Test Scores Using Factors from School Effectiveness Research." Paper presented at the American Research Association Annual Meeting, Washington, D.C., April 1986.

National Assessment of Educational Progress. The Reading Report Card, Progress Towards Excellence in Our Schools: Trends in Reading Over Four National Assessments, 1971-1984, Report No. 15-R-01, Princeton, New Jersey: Educational Testing Service, 1985.

National Commission on Excellence in Education. A Nation at Risk: The Imperative for Educational Reform. Washington D.C.: United States Department of Education, 1983, 5.

New Jersey Department of Education. New Jersey ESEA Title I Evaluation Report, Fiscal Year 1976, (1976), 11-13.

Pfannenstiel, Judy. "Analysis of Categorical Program Participation and Long Term Effects." Philadelphia, Pennsylvania: Research and Training Associates, Inc., 1987.

Pinnell, Gay Su et. al. "Reading Recovery: Early Intervention for At-Risk First Graders." Educational Research Service, 1988.

Plattor, Stanton. "Preliminary Findings From a Longitudinal Educational Project Being Conducted for Instructionally Impoverished Pupils in Intact Schools in the Urban South." New Orleans, Louisiana: Southern Association of Colleges and Schools, February 1968.

Reusing, Virginia. "The Impact of Daily Sustained Silent Reading on the Reading Attitudes of First Grade Students," Ohio Reading Teacher, 23, (Summer 1989): 2-11.

RoKeach, M. Beliefs, Attitudes, and Values: A Theory of Organization and Change. San Francisco: Jossey Bass, 1968.

Rush, R. T., A. J. Moe, and R. L. Storlie, Occupational Literacy Education, Newark Delaware: International Reading Association, 1991.

Russ, Mark. "Relating Reading Attitude to Reading Achievement in an East Los Angeles High School," Reading Improvement, 26, (Fall 1989): 208 - 214.

Showalther, Charlotte. "Choices: Enhancing Middle School Chapter I Student's Attitudes Toward Reading," WSRA Journal, 34, (Winter 1990): 411-413.

APPENDIX 1

RHODY SECONDARY READING ATTITUDE ASSESSMENT

Directions: This is a questionnaire to tell how you feel about reading. The results will not affect your grade in any way. You read the statements. Then put an X on the line under the letter or letters that represent how you feel about the statement.

SD - Strongly Disagree
D - Disagree
U - Undecided
A - Agree
SA - Strongly Agree

		SD	D	U	A	SA
1.	You feel you have better things to do than read.	_	—	—	—	—
2.	You seldom buy a book.	—	—	—	—	—
3.	You are willing to tell people that you do not like to read.	—	—	—	—	—
4.	You have a lot of books in your room at home.	—	—	—	—	—
5.	You like to read a book whenever you have free time.	—	—	—	—	—
6.	You get really excited about books you have read.	—	—	—	—	—
7.	You love to read.	—	—	—	—	—
8.	You like to read books by well-known authors.	—	—	—	—	—
9.	You never check out a book from the library.	—	—	—	—	—
10.	You like to stay at home and read.	—	—	—	—	—
11.	You seldom read except when you have to do a book report.	—	—	—	—	—
12.	You think reading is a waste of time.	—	—	—	—	—
13.	You think reading is boring.	—	—	—	—	—
14.	You think people are strange when they read a lot.	—	—	—	—	—

Page 2 - Rhody Secondary Reading Attitude Assessment

	SD	D	U	A	SA
15. You like to read to escape from problems.	—	—	—	—	—
16. You make fun of people who read a lot.	—	—	—	—	—
17. You like to share books with your friends.	—	—	—	—	—
18. You would rather someone just tell you information so that you won't have to read to get it.	—	—	—	—	—
19. You hate reading.	—	—	—	—	—
20. You generally check out a book when you go to the library.	—	—	—	—	—
21. It takes you a long time to read a book.	—	—	—	—	—
22. You like to broaden your interests through reading.	—	—	—	—	—
23. You read a lot.	—	—	—	—	—
24. You like to improve your vocabulary so you can use more words.	—	—	—	—	—
25. You like to get books for gifts.	—	—	—	—	—

APPENDIX 2

CHECKLIST FOR STUDENT'S ATTITUDES AND PERSONAL READING

Student_____ Teacher_____

		does not apply	most of the time	sometimes	not noticed yet
1.	Processes printed materials not assigned	—	—	—	—
2.	Uses classroom library	—	—	—	—
3.	Checks out books from school library	—	—	—	—
4.	Voluntarily shares outside reading	—	—	—	—
5.	Talks with other students about reading	—	—	—	—
6.	Seems to have a favorite author	—	—	—	—
7.	Requests more reading about topics	—	—	—	—
8.	Uses reading to satisfy personal interests	—	—	—	—
9.	Reads for recreation	—	—	—	—
10.	Chooses reading when choices are given	—	—	—	—
11.	Reading reflects interests in_____	—	—	—	—
12.	Applies ideas from reading to his/her life	—	—	—	—
13.	Seems to enjoy reading	—	—	—	—
16.	Parents report reading at home	—	—	—	—

APPENDIX 3

INTENSIVE READING RESEARCH STUDY INTERVIEW QUESTIONS

Subject's name _____ School _____

1. Do you think of yourself as a good reader?

2. What would you say are your strengths and weaknesses as a reader?

3. When you study and you realize you don't understand what you are reading, what do you do?

4. Are there any subjects you particularly like to read about?

5. Are there any things you do not like to read about?

6. Do you do any reading other than for school assignments? Why or why not?

DISSERTATION APPROVAL SHEET

The Study of Sustained Effects of Early Reading Intervention on African-American Students dissertation submitted by Debra A. Hill has been read and approved by the following committee:

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The final copies have been examined by the director of the committee and dissertation study and the signature which appears below verifies the fact that any necessary changes have been incorporated and that Study of Sustained Effects of Early Reading Intervention on African-American Students is not given final approval by the Committee with reference to content and form.

The Study of Sustained Effects of Early Reading Intervention on African-American Students is, therefore, accepted in partial fulfillment of the requirements of the degree of Ph.D.

April 15, 1993
Date

Diane Schiller
Director's Signature